

# High and Rising Health Care Costs. Part 1: Seeking an Explanation

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The United States has the most expensive health care system in the world, with per capita health expenditures far above those of any other nation. For many years, U.S. health care expenditures have been growing above the overall rate of inflation in the economy. A few experts have argued that high and rising costs are not such a serious problem. Most observers disagree with this view, pointing to the negative impact of employee health care costs on employers, the government budgetary problems caused by rising health care expenditures, and an association between high health care costs and reduced access for individuals needing health services.

Several explanations have been offered for high and rising health care costs. These include the perspectives that high and rising costs are created by forces external to the health system, by

the weakness of a competitive free market within the health system, by the rapid diffusion of new technologies, by excessive costs of administering the health system, by the absence of strong cost-containment measures, and by undue market power of health care providers.

This article, the first in a 4-part series, discusses 3 perspectives on health care: 1) Are high and rising health care costs a serious problem? 2) Are rising costs explained by factors outside the health care system? 3) Does the absence of a free market in health care explain why costs are high and rising? The remaining 3 articles in this series address other perspectives on health care costs.

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“Rising-health-care-costs” has become a household word—and worry—for the general public, governments, and employers who purchase health care for their employees. In 2002, the United States spent \$5267 per person for health care. Switzerland, the second most expensive health system, posted a per capita figure of \$3445, two thirds of the U.S. amount. The third, fourth, and fifth most costly health systems, those of Norway, Canada, and Germany, reported 2002 health expenditures per capita less than 60% that of the United States. The United Kingdom, a frugal system, spent \$2160 per person in 2002, 41% of the U.S. amount (1).

Not only does the United States outspend other nations in health care, but U.S. health care costs are growing rapidly. From 1988 to 1993, U.S. health expenditures rose by 9.7% per year. Following a slowdown from 1993 to 2000, costs jumped by 8.5% in 2001, 9.3% in 2002, and 7.7% in 2003 (2, 3). The health care sectors with the most rapid growth in cost are prescription drugs and administrative costs of private health insurance (each increasing at 11% to 16% over the past 3 years). Hospital and physician expenditures have been growing at annual rates closer to 7% to 8% over the past 3 years (3).

The federal government projected an average annual growth rate of 7.2% through 2013, with health expenditures (Table) rising from \$1.6 trillion in 2002 (14.9% of gross domestic product, the value of all goods and services produced in a nation) to \$3.6 trillion by 2013 (18.4% of gross domestic product) (4). It is undisputed that U.S. health expenditures are high and rising, but the mechanisms behind these phenomena are a topic of debate.

This article begins a 4-part series on health care costs. The series presents a variety of perspectives on costs and cost-control strategies. An overview of a complex topic, written by a noneconomist for noneconomists, the series addresses the following questions:

1. Are high and rising health care expenditures a seri-

ous problem, or is the national preoccupation with health care costs excessive?

2. Why are health care expenditures higher in the United States than in other countries?

3. Why are health care expenditures growing so fast?

4. What strategies are available to slow the rate of growth of health expenditures?

5. Do any strategies exist that enable physicians to reduce costs while improving or protecting quality?

Articles 1, 2, and 3 address the first 4 questions through discussions of 7 different perspectives on health care costs. The final article searches for health policy’s Holy Grail: cost-containment strategies that protect or improve health care quality.

## A QUICK SYNOPSIS OF THE HEALTH CARE SYSTEM

Four major actors occupy the health care stage: purchasers, insurers, providers, and suppliers (8). Purchasers, including employers, governments, and individuals (some of whom are patients), supply the funds. Insurers receive money from purchasers and reimburse providers. The government can be viewed as an insurer or a purchaser in the Medicare and Medicaid programs. The term “payer” refers to both purchasers and insurers.

Providers include physicians and other health professionals, hospitals, nursing homes, home care agencies, and pharmacies. Suppliers—the pharmaceutical, medical sup-

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**Table. How Are Health Care Costs Measured?\***

<p>Costs and expenditures are technically not the same.</p> <p><i>Expenditures</i> denote how much is spent to purchase a good or service (e.g., Blue Cross spent \$1500 for 1 hospital day for 1 patient).</p> <p><i>Costs</i> refer to the production process: the value of resources used to produce a good or service, including personnel, equipment, interest on borrowed funds, and a return on investment (5).</p> <p>In popular usage, however, costs and expenditures have come to mean the same thing. The papers in this series apply this popular usage, referring to "costs" and "expenditures" interchangeably to describe what is spent to purchase a health care product or service.</p> <p><i>Nominal</i> expenditure growth is the difference between dollars spent in one year and dollars spent in a previous year. For over 50 years, health expenditure growth has exceeded overall inflation in the economy. <i>Real</i> expenditure growth measures health expenditure growth in excess of overall inflation. If health spending is \$1 trillion in 1999 and \$1.1 trillion in 2000, nominal expenditure growth is 10%. If the overall rate of inflation during that period was 10%, real expenditure growth would be zero. These articles use nominal expenditure growth.</p> <p>There are different ways to express health expenditures. Articles emphasizing the severity of the cost problem may use private insurance premiums to make their point. For example, two employers "faced premium increases of 13 percent and 25 percent, respectively, in 2002" (6). Private premium increases do not correlate with national health expenditure growth because government expenditures—providing 45% of the health care dollar—have risen more slowly than private health insurance costs (2). Health insurers may increase premiums rapidly to make up for past financial losses (4, 7). Private premium growth is not a reliable measure of health expenditure growth.</p> <p>A commonly used measure is health expenditures as percentage of GDP. This measure is problematic because GDP growth varies from year to year. During the upbeat 1990s economy, GDP grew rapidly. Thus, health spending as a proportion of GDP remained the same, about 13.3% (4), giving the false impression that health expenditures did not increase. In fact, per capita health spending grew 35% during those years. In the first few years of the 21st century, with the economy stagnant, GDP rose slowly, creating an exaggerated rise in health expenditures as a proportion of GDP.</p> <p>Another frequently used measure is health expenditures per capita, which reveals how much is spent on the average person's health care in a year. This statistic is often used to compare one country with another, as well as to track expenditures over time.</p>
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\* GDP = gross domestic product.

ply, and computer industries—manufacture equipment, supplies, and medications used by providers.

Each dollar spent on health services represents an expense to payers and revenue to providers and suppliers. Payers generally wish to reduce the dollars flowing into health care, while providers and suppliers want to increase those dollars. Payers want to contain costs; providers and suppliers resist cost containment. That conflict is the fundamental battle in the health care economy.

Secondary skirmishes complicate this battle. Although insurance companies are payers and try to reduce reimbursements to providers and suppliers, they want more money from purchasers. Providers and suppliers may engage in ferocious conflicts; for example, hospitals purchasing pharmaceuticals negotiate for a low price while pharmaceutical manufacturers demand a high price. Providers

may face off against one another. If a physician group receives a capitation payment from an insurer, primary care physicians and specialists may fight over how much of the capitation check goes to each group.

Health care costs represent a battleground among competing interests (Figures 1 and 2).

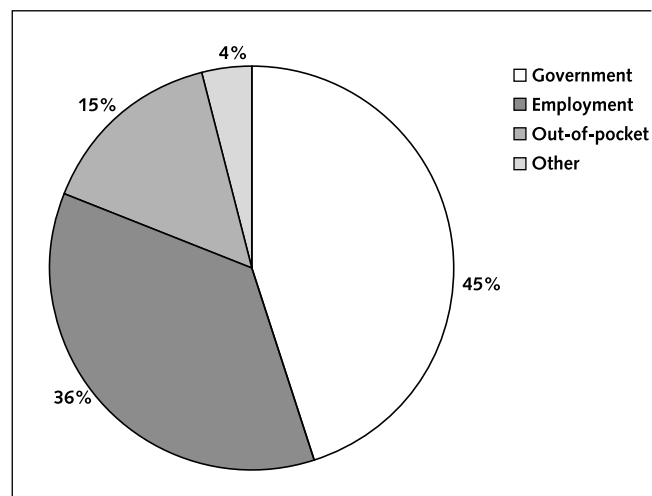
### VARYING PERSPECTIVES ON HEALTH CARE COSTS

The literature—scientific, commercial, and popular—on health care costs contains a variety of perspectives on why costs are high and how to control their growth. While few analysts adhere to only 1 of these views, the perspectives can be grouped into 7 categories.

1. High and rising costs are not such a serious problem.
2. High and rising costs are a problem, but they are created by factors external to the health care system.
3. High and rising costs are caused by the absence of a free market; the remedy is to give patients more responsibility for costs of care and to encourage competition among health insurers and providers.
4. High and rising costs result from medical technologies creating innovation in the diagnosis and treatment of illness.
5. High and rising costs are in part the result of excessive costs of administering the health care system.
6. High and rising costs are explained by the absence of strong cost-containment measures.
7. High and rising costs are the result of the market power of health care providers.

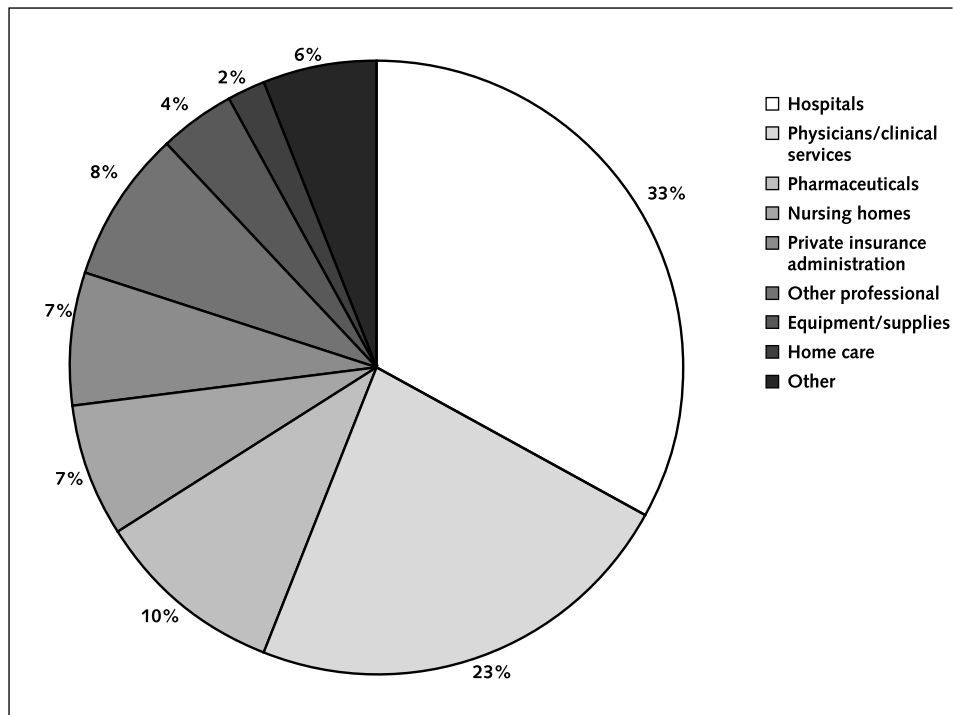
I take each of these perspectives in turn and examine some arguments pro and con, linking differing cost-control strategies to some of these perspectives. In this article I cover the first 3 perspectives. In a few cases, agreement

**Figure 1. Where the health care dollar comes from, 2002.**



Adapted with permission from Levit et al. (2). Copyright 2004, Project HOPE—The People-to-People Health Foundation, Inc.

Figure 2. Where the health care dollar goes, 2002.



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among analysts is substantial. In other cases, disagreements are profound.

#### Perspective 1: Costs Are Not a Serious Problem

Some articles have argued that high and rising health expenditures present some difficulties but are not a serious problem. These writings point out that health care improves health outcomes, provides jobs and income, and delivers services that people desire; thus, increased health expenditures may be a good rather than a bad thing. Moreover, if the general economy is expanding, increases in health spending may not reduce spending on sectors outside the health care economy (9–11).

Organizations and individuals touched by the reality of costly health care do not share this opinion. Most employers, for whom the purchase of employee health insurance is an expense rather than a revenue, are anxious to reduce insurance premiums (12–14). If premiums were lower, employers could augment employee wages, reduce consumer prices, or increase profits (15, 16). Expanding government health expenditures create budget deficits and crowd out spending for education, police, fire, and other services (15). Rising costs increase the number of uninsured people through 3 mechanisms: Employers stop offering insurance to their employees (14, 17, 18), employees decline employer-offered health insurance because they cannot afford the employee share of the premium (19), and people are dropped from Medicaid as state governments respond to increased costs with eligibility reductions (20, 21). For the large proportion of the population that is

uninsured or underinsured, higher costs make physician visits, preventive services, and prescription drugs less affordable, particularly for poor persons, elderly patients, and those in ill health (22–26). When costs rise and governments reduce reimbursements, institutions serving as the safety net for the uninsured may close their doors (27). These effects of rising costs demonstrate that increased cost often means decreased access.

In summary, while rising costs may not create major problems for the economy as a whole, they do negatively affect employers, employees, governments, and patients.

#### Perspective 2: High Costs Are Due to Factors External to the Health Care System

High health care costs might derive from factors outside the health sector rather than from characteristics of the health care system itself. One such external cause is the state of the overall economy. International comparisons of health spending consistently show that the level of health expenditures per capita is closely associated with total GDP per capita. In other words, richer nations spend more per capita on health care than poorer nations (28).

Although no one disputes this association, one key fact stands out: The United States is a striking outlier (Figure 3). For example, the U.S. GDP per capita is 150% that of Sweden, but U.S. health spending per capita is 240% that of Sweden (28). The same relationship is found between the United States and almost all other developed nations (29). The U.S. outlier status suggests that high and rising

costs in the United States cannot be explained simply by invoking GDP per capita.

Another possible external cause for rising health care costs is the aging of the populations of developed nations. Given that people older than 75 years of age incur per capita health expenditures 5 times higher than those of people age 25 to 34 years (30), it is logical to assume that nations with a higher proportion of elderly people would have higher per capita health expenditures than nations with younger age distributions.

Research, however, consistently shows that this demographic trend explains only 6% to 7% of health expenditure growth (30–32). A cross-national regression analysis of the effects of aging on health spending found no significant relationship between the percentage of elderly persons in a nation's population and national health spending (28, 30, 32).

Several factors explain this finding. The fraction of the population age 65 years and older is rising relatively slowly (30), and per capita health spending for the elderly is increasing more slowly than per capita spending for non-elderly persons (33), diminishing the cost impact of an aging population. While end-of-life costs are high, they are not increasing faster than health expenditures as a whole (31). While life expectancy is increasing, the number of years of disability is lessening, which is a cost-saving trend (34, 35). One caveat is that persons with multiple risk factors for serious illness have twice the rate of disability of those with no risk factors (36); the epidemic of obesity is a cloud on the cost horizon (37). In summary, rising health care costs are not strongly associated with the aging popu-

lation and are therefore not an inevitable consequence of this demographic reality.

### Perspective 3: The Absence of a Free Market Creates High and Rising Costs

Some policy experts argue that costs could be reduced by introducing an unfettered free market in health care (38–40).

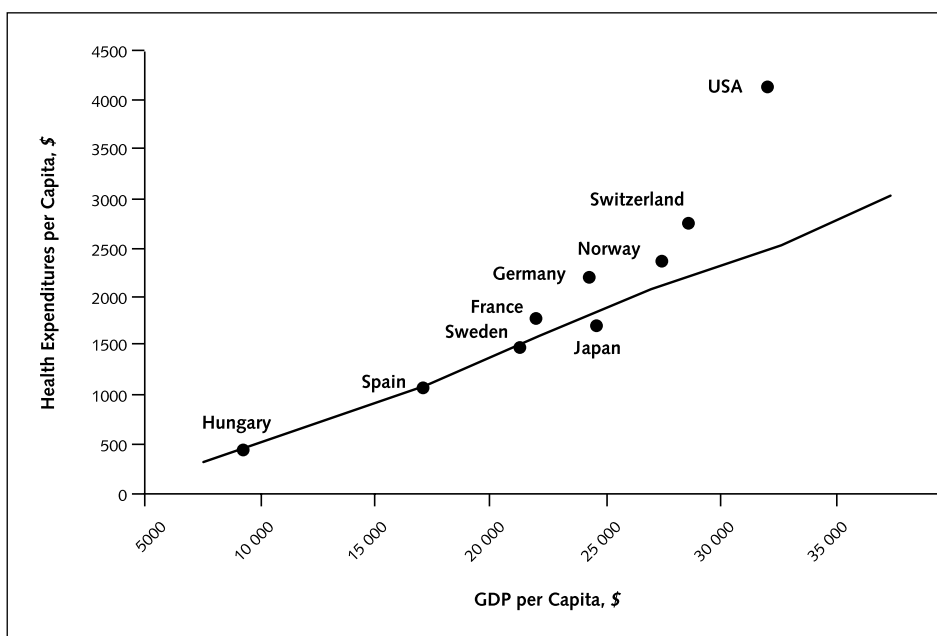
A market is a place where buyers and sellers make transactions. In a free, competitive market, the price of a product or service is determined by the forces of supply and demand; there are many buyers and sellers such that no single buyer or seller is able to set the price of a product or service; and each buyer has sufficient information to make rational purchasing decisions.

The health care sector of the economy consists of multiple markets. These markets include patients obtaining physician and hospital services, health insurance plans making contracts with hospitals, and employers choosing which health plans they will use to insure their employees.

At the level of patients seeking physician and hospital services, a free market means that patients, responsible for some or all of their costs, have sufficient information on the costs of different providers and seek low-priced physicians and hospitals. Physicians and hospitals would lower their fees to attract patients. In reality, patients do not purchase physician and hospital services in a free market, as shown by the following.

1. Patients cannot compare the cost of medical services because different health conditions lead to widely differing costs. A patient with a headache does not know whether

Figure 3. Health expenditures and gross domestic product (GDP) per capita, 1998.



Values are U.S. dollars (purchasing power parity international dollars). Data obtained from the Organization for Economic Cooperation and Development (1).



the cost of care will be a \$50 physician visit plus a bottle of aspirin or \$60 000 neurosurgery for a brain neoplasm.

2. Because most health care is a necessity rather than a luxury, private and government insurance has evolved to shield patients from the financial disaster of serious illness, obviating the need for patients to shop for lower-cost services.

3. A free market might lead to patients becoming more cost conscious, but low-income and sick people who are responsible for all or part of their health care costs may incur unaffordable expenditures and be priced out of receiving needed services.

At the level of health insurance plans choosing which hospitals their enrollees could use, a free market requires that a sufficient number of hospitals, competing on the basis of price, exists in each geographic region. At the level of employers choosing health insurance plans, a free market means that each geographic region contains an adequate number of competitive health plans; employers would seek out plans with lower premiums, and insurers would reduce their premiums to compete for employer contracts.

In reality, these transactions do not take place in competitive free markets. Hospitals and insurance plans have consolidated in most geographic regions (41, 42), and entry of new hospitals or health plans into a market is difficult, thereby undermining the price competition that is a necessary component of a free market.

Cost-containment strategies based on the free market perspective include increased patient cost sharing and competition among health care providers and insurers.

### **Patient Cost Sharing**

An influential school of thought advocates that consumers should be responsible for a greater share of their health care costs. Employers are requiring employees to pay more for health insurance premiums, deductibles, and copayments (17). A deductible is the sum of money patients must pay to physicians or hospitals each year before the insurance company begins to pay for those services. A copayment is a small fee (often \$5 or \$10) that patients must pay for each health service received. Co-insurance is similar to a copayment but is the percentage (rather than a specific amount) of the cost of a service that the patient is responsible to pay. Taking the place of health maintenance organization (HMO) plans with no deductible and minimal copayments are products with \$2500 deductibles and 25% co-insurance. Medical savings account plans may have deductibles reaching \$10 000 (43, 44).

Advocates of the patient cost-sharing strategy cite as evidence the 1970s RAND Health Insurance Experiment, which compared health expenditures of patients receiving free care with those of similar patients paying for 25%, 50%, or 95% of their care out-of-pocket. Cost-sharing patients had an upper limit on their costs. The study found

that patients receiving free care utilized more services and had higher expenditures than cost-sharing patients (45, 46). For example, people responsible for 50% of their costs up to \$1000 had total health care expenditures about 10% below those receiving free care. Of note, expenditures for HMO patients receiving free care were 38% lower than those for patients in the free-care, fee-for-service group, suggesting that the replacement of fee-for-service insurance with capitated systems is more effective than patient cost sharing in reducing expenditures (46).

The effectiveness of patient cost sharing as a cost control mechanism has been challenged by other analysts (42, 47) and by the RAND investigators themselves (31, 46). From 1950 to 1984, the spread of health insurance coverage (that is, the reduction in patient responsibility for health care costs) explains only 5% to 10% of spending growth (31, 32, 46). Moreover, the United States has one of the highest levels of patient cost sharing among developed nations yet has the highest expenditures per capita.

Another fact buttresses the argument that patient cost sharing is marginally effective in containing costs: Seventy percent of health care expenditures are incurred by 10% of the population (48). It is likely that patients in the high-cost 10% (that is, those who suffer an acute catastrophe or prolonged chronic illness) are far too sick to impose limits on their care because they must pay for part of that care. Thus, 70% of health expenditures may be unaffected by shifting costs to patients. The RAND experiment did not study high-cost patients because the study excluded elderly persons, and study participants were not responsible for costs above \$1000 per year (46). The RAND study found that patient cost sharing reduced the likelihood of seeing a physician but had little effect on the costliness of an illness once care was sought (49). Compared to the micro-world of one not-very-sick patient deciding whether to spend some money on a physician visit, patient cost sharing in the macro-world may remove only a thin slice from a large, expanding pie.

### **Competition**

Controlling costs through free-market competition is an idea gaining currency in the United States. The barriers to a free market (discussed earlier in this section) make competition almost impossible at the level of patients paying out-of-pocket for medical services. However, competition is a realistic option for health insurance plans contracting with hospitals and purchasers choosing health plans.

*Health Plans Contracting with Providers.* Before the 1980s, hospitals competed for patients by competing for admitting physicians. To attract physicians, many hospitals constructed state-of-the-art radiology and surgical facilities. As a result of this "medical arms race," an oversupply of facilities existed in many metropolitan areas. This form of competition caused costs to rise rather than fall (50–52).

This situation reversed as health insurance plans—

which formerly paid any hospital that cared for its enrollees—began to contract selectively with hospitals agreeing to lower prices. Hospitals became less concerned with competing for physicians and more concerned with competing for patients by contracting with insurance plans. From 1980 to 1990, especially in California (where selective contracting was well developed), competitive markets were associated with lower hospital costs (50, 53, 54). In a competitive market, many firms (in this case, hospitals) exist and no firm has a major share of the market (55).

In response to insurers' success in cutting payments to hospitals that were competing for insurance contracts, the hospital industry consolidated, reducing the number of hospital entities and thereby reducing the amount of competition. From 1995 to 2000, the proportion of private hospitals in multihospital systems increased markedly; in some areas, 60% to 80% of acute private admissions went to hospitals in multihospital systems (56). Insurers could no longer force hospitals to accept low reimbursement rates because insurers needed contracts with the 2 or 3 hospital systems in each geographic market to guarantee accessible medical services to their enrollees (57).

Market power is the ability of a seller to raise prices without losing customers (58). Hospitals have market power if they can raise rates without losing insurance contracts. As hospitals consolidated and competition waned, hospitals gained market power and prices of hospital care shot back up (59–61). In 1 study, the merger of 2 competing hospitals led to price increases of 20% to 40% (62).

To summarize, there is a fundamental difference between the pre- and postselective contracting eras. In the former era, hospital competition led to higher costs; in the latter, competition has been associated with lower costs and lower hospital revenues, leading hospitals to respond in an anticompetitive manner through consolidation.

*Purchasers Choosing Health Plans.* Competition can also take place in the market of purchasers—employers or government—buying health insurance. An example is provided by the experience of Medicare HMOs, which are insurance plans that accept a fixed payment from Medicare for enrolled Medicare beneficiaries. Medicare hoped that a system in which HMOs competed to enroll Medicare beneficiaries would reduce costs. The result was the opposite: Costs went up for the Medicare program. To reduce their own costs, Medicare HMOs attracted healthier beneficiaries; HMOs had only half of fee-for-service Medicare's proportion of people in poor health (63). Medicare was paying several thousand dollars a year per patient for the 58% of HMO patients in good health (63), patients who would cost few dollars under traditional Medicare. As a result, Medicare paid HMOs between 13% and 21% more per beneficiary than traditional Medicare (64, 65). This particular form of competition was not successful as a cost reduction measure.

Another variety of competition in the purchaser-insurer market is “managed competition.” Employers

would provide employees a set amount of money for health insurance, perhaps \$400 per month for a family. If the employee elected a health plan costing \$600 per month, the employee would pay the extra \$200 per month. To attract employees, health plans would compete to provide the lowest premiums, thereby reducing health expenditure growth (39). The competition was supposed to be “managed” (government-regulated) to prevent health plans from selectively enrolling healthy people, as in the Medicare HMO program.

Managed competition was never implemented because the consolidation of health insurance plans and hospitals undermined the potential for competition. In all but 14 states, 3 insurers control over 65% of the market; their market clout enables them to negotiate high premiums from employers with scant risk for losing customers (42). Higher concentrations of market share among a few HMOs are associated with higher HMO profits (55). Because managed competition has never been implemented, it is not known whether it can control costs (66, 67).

In summary, competition can reduce health care costs under favorable conditions. These conditions existed for a brief period in the 1990s. With many competing health insurance plans, employers were able to reduce insurance premium growth; as long as there were a multiplicity of competing hospitals, health plans could control payments to hospitals. The consolidation of health plans and hospitals may have put an end to that brief competitive era.

## CONCLUSION

In seeking an explanation for high and rising health expenditures, the economics and health policy literature offers several perspectives. The aging of the population is not an adequate explanation, nor is the post-1950s' spread of health insurance, which reduced patients' responsibility for the costs of care. The lack of well-developed competitive markets in health care may be partially responsible for high health expenditures. The next article in this series will explore a more plausible explanation for high and rising health expenditures: technological innovation.

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## References

1. Organization for Economic Cooperation and Development (OECD). Health Data 2004. Accessed at [www.oecd.org](http://www.oecd.org) on 15 November 2004.

2. Levit K, Smith C, Cowan C, Sensenig A, Catlin A. Health spending rebound continues in 2002. *Health Aff (Millwood)*. 2004;23:147-59. [PMID: 15002637]
3. Smith C, Cowan C, Sensenig A, Catlin A. Health spending growth slows in 2003. *Health Aff (Millwood)*. 2005;24:185-94. [PMID: 15644387]
4. Heffler S, Smith S, Keehan S, Clemens MK, Zezza M, Truffer C. Health spending projections through 2013. *Health Aff (Millwood)*. Web Exclusive. 11 February 2004. 10.1377/hlthaff.w4.79 Accessed at <http://content.healthaffairs.org/cgi/content/full/hlthaff.w4.79v1/DC1> on 25 March 2005.
5. Rice TH. Measuring health care costs and trends. In: Andersen RM, Rice TH, Kominski GF, eds. *Changing the U.S. Health Care System*. San Francisco: Jossey-Bass; 1996:62-80.
6. Sandy LG. Homeostasis without reserve—the risk of health system collapse. *N Engl J Med*. 2002;347:1971-5. [PMID: 12477951]
7. Strunk BC, Ginsburg P. Tracking health care costs: trends stabilize but remain high in 2002. *Health Aff (Millwood)*. Web Exclusive. 11 June 2003. 10.1377/hlthaff.w3.266. Accessed at <http://content.healthaffairs.org/cgi/content/full/hlthaff.w3.266v1/DC1> on 25 March 2005.
8. Bodenheimer T, Grumbach K. Conflict and change in US health care. In: *Understanding Health Policy: A Clinical Approach*. New York: McGraw-Hill; 2005:167-75.
9. Pauly MV. U.S. health care costs: the untold true story. *Health Aff (Millwood)*. 1993;12:152-9. [PMID: 8244228]
10. Chernew ME, Hirth RA, Cutler DM. Increased spending on health care: how much can the United States afford? *Health Aff (Millwood)*. 2003;22:15-25. [PMID: 12889745]
11. Pauly MV. Should we be worried about high real medical spending growth in the United States? *Health Aff (Millwood)*. Web Exclusive. 8 January 2003. 10.1377/hlthaff.w3.15. Accessed at <http://content.healthaffairs.org/cgi/content/full/hlthaff.w3.15v1/DC1> on 25 March 2005.
12. Bodenheimer T, Sullivan K. How large employers are shaping the health care marketplace. Second of two parts. *N Engl J Med*. 1998;338:1084-7. [PMID: 9535677]
13. Morrison I. *Health Care in the New Millennium*. San Francisco: Jossey-Bass; 2000:123-4.
14. Gabel J, Levitt L, Holve E, Pickreign J, Whitmore H, Dhont K, et al. Job-based health benefits in 2002: some important trends. *Health Aff (Millwood)*. 2002;21:143-51. [PMID: 12224876]
15. Davis K, Anderson GF, Rowland D, Steinberg EP. *Health Care Cost Containment*. Baltimore: Johns Hopkins Univ Pr; 1990.
16. Halvorson GC, Isham GJ. *Epidemic of Care*. San Francisco: Jossey-Bass; 2003.
17. Gabel J, Claxton G, Holve E, Pickreign J, Whitmore H, Dhont K, et al. Health benefits in 2003: premiums reach thirteen-year high as employers adopt new forms of cost sharing. *Health Aff (Millwood)*. 2003;22:117-26. [PMID: 14515887]
18. Gabel J, Claxton G, Gil I, Pickreign J, Whitmore H, Holve E, et al. Health benefits in 2004: four years of double-digit premium increases take their toll on coverage: five million fewer jobs provided health insurance in 2004 than in 2001, this new analysis finds. *Health Aff (Millwood)*. 2004;23:200-9. [PMID: 15371386]
19. Gabel JR. Job-based health insurance, 1977-1998: the accidental system under scrutiny. *Health Aff (Millwood)*. 1999;18:62-74. [PMID: 10650689]
20. Weil A. There's something about Medicaid. *Health Aff (Millwood)*. 2003;22:13-30. [PMID: 12528836]
21. **Kaiser Commission on Medicaid and the Uninsured**. Medicaid Enrollment in 50 States. Menlo Park, CA: Kaiser Family Foundation; December 2002. Accessed at [www.kff.org](http://www.kff.org) on 6 December 2004.
22. **Kaiser Commission on Medicaid and the Uninsured**. Uninsured in America: A Chart Book. Menlo Park, CA: Kaiser Family Foundation; 1998.
23. Ayanian JZ, Weissman JS, Schneider EC, Ginsburg JA, Zaslavsky AM. Unmet health needs of uninsured adults in the United States. *JAMA*. 2000;284:2061-9. [PMID: 11042754]
24. Lohr KN, Brook RH, Kamberg CJ, Goldberg GA, Leibowitz A, Keesey J, et al. Use of medical care in the Rand Health Insurance Experiment. Diagnosis- and service-specific analyses in a randomized controlled trial. *Med Care*. 1986;24:S1-87. [PMID: 3093785]
25. Blustein J. Drug coverage and drug purchases by Medicare beneficiaries with hypertension. *Health Aff (Millwood)*. 2000;19:219-30. [PMID: 10718036]
26. Federman AD, Adams AS, Ross-Degnan D, Soumerai SB, Ayanian JZ. Supplemental insurance and use of effective cardiovascular drugs among elderly Medicare beneficiaries with coronary heart disease. *JAMA*. 2001;286:1732-9. [PMID: 11594898]
27. **Institute of Medicine**. *America's Health Care Safety Net: Intact but Endangered*. Washington, DC: National Academies Pr; 2000.
28. **Organization for Economic Cooperation and Development (OECD)**. *A Disease-based Comparison of Health Systems: What Is Best and at What Cost?* Paris: OECD; 2003. Accessed at [www.oecd.org](http://www.oecd.org) on 6 December 2004.
29. Reinhardt UE, Hussey PS, Anderson GF. Cross-national comparisons of health systems using OECD data, 1999. *Health Aff (Millwood)*. 2002;21:169-81. [PMID: 12025981]
30. Reinhardt UE. Does the aging of the population really drive the demand for health care? *Health Aff (Millwood)*. 2003;22:27-39. [PMID: 14649430]
31. Newhouse JP. An iconoclastic view of health cost containment. *Health Aff (Millwood)*. 1993;12 Suppl:152-71. [PMID: 8477929]
32. Aaron HJ. *Serious and Unstable Condition*. Washington, DC: The Brookings Institution; 1991.
33. Meara E, White C, Cutler DM. Trends in medical spending by age, 1963-2000. *Health Aff (Millwood)*. 2004;23:176-83. [PMID: 15318578]
34. Fries JF. Aging, natural death, and the compression of morbidity. *N Engl J Med*. 1980;303:130-5. [PMID: 7383070]
35. Manton KG, Gu X. Changes in the prevalence of chronic disability in the United States black and nonblack population above age 65 from 1982 to 1999. *Proc Natl Acad Sci U S A*. 2001;98:6354-9. [PMID: 11344275]
36. Vita AJ, Terry RB, Hubert HB, Fries JF. Aging, health risks, and cumulative disability. *N Engl J Med*. 1998;338:1035-41. [PMID: 9535669]
37. Sturm R, Ringel JS, Andreyeva T. Increasing obesity rates and disability trends. *Health Aff (Millwood)*. 2004;23:199-205. [PMID: 15046144]
38. Herzlinger R. *Market Driven Health Care*. Reading, MA: Addison-Wesley; 1997.
39. Enthoven AC. Employment-based health insurance is failing: now what? *Health Aff (Millwood)*. Web Exclusive. 28 May 2003. 10.1377/hlthaff.w3.237. Accessed at <http://content.healthaffairs.org/cgi/content/full/hlthaff.w3.237v1/DC1> on 25 March 2005.
40. Liebowitz S. Why Health Care Costs Too Much. *Cato Policy Analysis No. 211*. Washington, DC: Cato Institute; 23 June 1994. Accessed at [www.cato.org/pub\\_display.php?pub\\_id=1070](http://www.cato.org/pub_display.php?pub_id=1070) on 15 January 2004.
41. Keeler EB, Melnick G, Zwanziger J. The changing effects of competition on non-profit and for-profit hospital pricing behavior. *J Health Econ*. 1999;18:69-86. [PMID: 10338820]
42. Robinson JC. Consolidation and the transformation of competition in health insurance. *Health Aff (Millwood)*. 2004;23:11-24. [PMID: 15584099]
43. Robinson JC. Renewed emphasis on consumer cost sharing in health insurance benefit design. *Health Aff (Millwood)*. Web Exclusive. 20 March 2002. 10.1377/hlthaff.w2.139. Accessed at <http://content.healthaffairs.org/cgi/content/full/hlthaff.w2.139v1/DC1> on 25 March 2005.
44. Christianson JB, Parente ST, Taylor R. Defined-contribution health insurance products: development and prospects. *Health Aff (Millwood)*. 2002;21:49-64. [PMID: 11900095]
45. Newhouse JP, Manning WG, Morris CN, Orr LL, Duan N, Keeler EB, et al. Some interim results from a controlled trial of cost sharing in health insurance. *N Engl J Med*. 1981;305:1501-7. [PMID: 6795505]
46. Manning WG, Newhouse JP, Duan N, Keeler EB, Leibowitz A, Marquis MS. Health insurance and the demand for medical care: evidence from a randomized experiment. *Am Econ Rev*. 1987;77:251-77. [PMID: 10284091]
47. Rice T. Who gets what and how much? In: Ginzberg E, ed. *Critical Issues in U.S. Health Reform*. Boulder, CO: Westview Pr; 1994:57-72.
48. Berk ML, Monheit AC. The concentration of health care expenditures, revisited. *Health Aff (Millwood)*. 2001;20:9-18. [PMID: 11260963]
49. Newhouse JP. Consumer-directed health plans and the RAND Health Insurance Experiment. *Health Aff (Millwood)*. 2004;23:107-13. [PMID: 15584103]
50. Melnick G. Hospital price competition and the growth of managed care. In: Andersen RM, Rice TH, Kominski GF, eds. *Changing the U.S. Health Care System*. San Francisco: Jossey-Bass; 1996:302-16.
51. Luft HS, Robinson JC, Garnick DW, Hughes RG, McPhee SJ, Hunt SS, et al. Hospital behavior in a local market context. *Med Care Rev*. 1986;43:217-51. [PMID: 10286465]
52. Devers KJ, Brewster LR, Casalino LP. Changes in hospital competitive strategy: a new medical arms race? *Health Serv Res*. 2003;38:447-69. [PMID: 12650375]

53. Zwanziger J, Melnick GA, Bamezai A. Costs and price competition in California hospitals, 1980-1990. *Health Aff (Millwood)*. 1994;13:118-26. [PMID: 7988988]
54. Robinson JC. HMO market penetration and hospital cost inflation in California. *JAMA*. 1991;266:2719-23. [PMID: 1942424]
55. Pauly MV, Hillman AL, Kim MS, Brown DR. Competitive behavior in the HMO marketplace. *Health Aff (Millwood)*. 2002;21:194-202. [PMID: 11900077]
56. Cuellar AE, Gertler PJ. Trends in hospital consolidation: the formation of local systems. *Health Aff (Millwood)*. 2003;22:77-87. [PMID: 14649434]
57. Devers KJ, Casalino LP, Rudell LS, Stoddard JJ, Brewster LR, Lake TK. Hospitals' negotiating leverage with health plans: how and why has it changed? *Health Serv Res*. 2003;38:419-46. [PMID: 12650374]
58. Ginsburg PB. Can hospitals and physicians shift the effects of cuts in Medicare reimbursement to private payers? *Health Aff (Millwood)*. Web Exclusive. 8 October 2003. 10.1377/hlthaff.w3.472. Accessed at <http://content.healthaffairs.org/cgi/content/full/hlthaff.w3.472v1/DC1> on 25 March 2005.
59. Town R, Vistnes G. Hospital competition in HMO networks. *J Health Econ*. 2001;20:733-53. [PMID: 11558646]
60. Krishnan R. Market restructuring and pricing in the hospital industry. *J Health Econ*. 2001;20:213-37. [PMID: 11252371]
61. Melnick G, Keeler E, Zwanziger J. Market power and hospital pricing: are nonprofits different? *Health Aff (Millwood)*. 1999;18:167-73. [PMID: 10388213]
62. Goetghebeur MM, Forrest S, Hay JW. Understanding the underlying drivers of inpatient cost growth: a literature review. *Am J Manag Care*. 2003;9 Spec No 1:SP3-12. [PMID: 12817611]
63. Current Medicare Current Beneficiary Survey, 2000. Washington, DC: Center for Medicare & Medicaid Services; 2001. Accessed at [www.cms.hhs.gov/MCBS/PubCNP00.asp](http://www.cms.hhs.gov/MCBS/PubCNP00.asp) on 7 December 2004.
64. Berenson RA. Medicare + Choice: doubling or disappearing? *Health Aff (Millwood)*. Web Exclusive. 28 November 2001. 10.1377/hlthaff.w1.65. Accessed at <http://content.healthaffairs.org/cgi/content/full/hlthaff.w1.65v1/DC1> on 25 March 2005.
65. Medicare: Fewer and Lower-Cost Beneficiaries with Chronic Conditions Enroll in HMOs. Washington, DC: U.S. General Accounting Office; August 1997.
66. Rice T, Brown R, Wyn R. Holes in the Jackson Hole approach to health care reform. *JAMA*. 1993;270:1357-62. [PMID: 8360971]
67. Luft HS, Grumbach K. Global budgets and the competitive market. In: Ginzberg E, ed. *Critical Issues in U.S. Health Reform*. Boulder, CO: Westview Pr; 1994:303-22.