

## American Economic Association

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Author(s): Sherry Glied

Source: *The Journal of Economic Perspectives*, Vol. 17, No. 2 (Spring, 2003), pp. 125-148

Published by: American Economic Association

Stable URL: <http://www.jstor.org/stable/3216861>

Accessed: 25/08/2009 15:49

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## Health Care Costs: On the Rise Again

Sherry Glied

**B**etween 1993 and 1999, something extraordinary happened with U.S. health expenditures: they declined as a share of national income for the longest period since the Great Depression. While per capita costs had grown at an inflation adjusted annual average rate of 4.7 percent between 1950 and 1993, they grew at less than half this rate—less than 1.9 percent—between 1993 and 1999. By 1999, health care spending was 25 percent lower than might have been expected based on historic growth rates. This moderate rate of growth in health care costs conferred many benefits. Medicare costs grew more slowly than expected, which helped move the federal government's budget from deficit to surplus. Slower growth of Medicaid, in tandem with new federal matching funds through the 1997 State Child Health Insurance Program (SCHIP), prompted states to expand health insurance coverage, making nearly 30 million children eligible for public health insurance coverage (Cunningham, 2001). Lower increases in employer sponsored health insurance premiums contributed to the largest increases in real wages observed since the early 1970s (Council of Economic Advisers, 2001). Individual purchasers of health insurance realized savings, too. Between 1998 and 2000, for the first time in more than a decade, the percentage of Americans who were uninsured fell.

But since 1999, health care costs have resumed growing faster than the overall economy. What happened to bring slower growth in health care costs in the 1990s? Is the pattern likely to recur in the future?

Health care costs are the combined outcome of short-term, medium-term and long-term forces. The structure of current health insurance contracts is an important

■ *Sherry Glied is Professor of Health Policy and Management, Mailman School of Public Health, Columbia University, New York, New York. Her e-mail address is <sag1@columbia.edu>.*

short-term force, as these contracts affect the volume of services used and the prices paid for these services. The insurance underwriting cycle, a coarse adjustment process through which the prices and quantities of diverse medical services are converted into a forecast price for the bundle of such services covered by a future insurance package, is active in the medium term. The most important long-term force is technological innovation. Long-term forces also include demographic changes that affect the demand for medical care services in the population, although to date, these demographic changes have not had substantial effects on health care costs (Reinhardt, 2000). This paper will examine the recent evolution of these three sets of forces and discuss their likely course over the next decade. It appears likely—although forecasts of health care costs growth are notoriously unreliable—that the historically low rates of cost growth seen in the 1990s will not reappear soon. While increases in health care costs may reflect efficient and desirable improvements in medical technology, they pose enormous challenges to efforts to increase—or even maintain—a level of equity in the U.S. health care system.

### **Health Care Costs in the Short Term: Structure of Contracts**

Health care buyers and policymakers often focus in the short term on altering the structure of health care contracts to reduce expenditures at a point in time. Private and public health insurance, along with government subsidies to the purchasers of insurance and directly to providers, shelter consumers of medical services from many of the financial consequences of their decisions. This separation between the price paid by patients and the total cost of the services they use leads to moral hazard, which may generate excessive and excessively costly service use. As a result, there is considerable potential for reductions in expenditures at a point in time, both by making service use decisions more efficient and through the selection of lower-cost providers.

Historically, the main strategy for reducing moral hazard in health insurance has been consumer cost sharing. Paying a larger share of the health care bill should lead consumers to be more careful about the quantity of services they consume and the prices they pay. A great deal of evidence shows that cost sharing does reduce health care costs. The best evidence comes from the RAND health insurance experiment conducted between 1974 and 1982 (Newhouse and the Health Insurance Experiment Group, 1993). The RAND study, which enrolled 2,000 nonelderly families across six sites, found that participants enrolled in a plan with 95 percent cost sharing (up to a maximum of \$1000 out of pocket) were much less likely to make any physician visits in a given year (67.7 percent versus 78.7 percent) and were less likely to be hospitalized (7.9 percent versus 8.4 percent) than were those whose care was free. Expenditures under the 95 percent cost sharing plan were 45 percent below those of a plan with free care and 22 percent below that of a standard indemnity health insurance plan with 25 percent cost sharing. Except among low-income participants, health outcomes did not vary with cost sharing.

By 1993, however, a diverse and substantial body of evidence had shown that, at prevailing levels, cost sharing alone produced a health care system characterized by substantial inefficiency. For example, extensive research on geographic variations in medical care suggests that decisions about service use vary tremendously from one narrowly defined region to another in ways that cannot readily be explained by sociodemographic or health characteristics or by personal preferences (Phelps, 1992; Blumenthal, 1994). Thus, some geographic areas appear to be providing care with little marginal benefit. Many studies found that some treatments were provided when they were likely to generate more harm than good. For example, one study estimated that 10 percent of coronary bypass surgeries—a dangerous and painful procedure—performed on Medicare patients in five states in 1991–1992 were inappropriate, and a further 15 percent were assessed as of uncertain value (Schneider et al., 2001).

There was also ample evidence that price competition in most medical markets did not operate effectively to reduce costs. Studies through the 1980s found that when many hospitals compete in the same market, prices in that market are higher—not lower—than in settings with fewer competitors. Competing hospitals engaged in a “medical care arms race,” buying more and costlier equipment than their neighbors. Consumers, who both lack information about the value of this equipment for their condition and who generally do not face full costs at the margin, select the hospital that appears to offer the highest-quality service. These effects are not small—the medical care arms race generated hospital costs 20 percent higher in the most competitive markets than in the least competitive markets (Robinson and Luft, 1985).

Even the RAND results suggest that consumer cost sharing alone is not a very effective strategy to encourage either appropriate service use or price shopping. Consumers who face greater costs at the margin are not more likely to make medically effective choices about health care service use. In the RAND experiment, the percentage of visits to primary care doctors that were not expected to yield medical benefit did not differ when the level of cost sharing was varied in health insurance (Newhouse and the Health Insurance Experiment Group, 1993). Similarly, participants in the RAND study who faced higher cost sharing did not shop more effectively, conditional on any use, than those who faced lower cost sharing. Conditional on either a visit or a hospitalization, levels of service use were not significantly different among the plans. The RAND researchers found no evidence, in their relatively small-scale experiment, that participants in high-deductible plans paid lower prices for services than did those who faced less cost sharing.

Price competition generated by individual consumers does seem to be feasible in certain medical markets with well-defined services and sufficient competition. For example, Benham’s (1972) study of the eyeglasses market, and anecdotal evidence from noninsured services such as Lasik surgery and in vitro fertilization, suggests that per service price competition is sometimes workable. But in many health care markets, especially in the event of an acute and uncertain medical problem, a patient may need an unpredictable and potentially broad range of

services. These various medical services are complex, hard to assess and often unbundled; for example, the surgeon, anesthesiologist and hospital will all submit separate bills for the same surgical procedure, and the bill will depend on the services after they have been delivered.

The ability of individual consumers to shop for low-priced services may also be impeded because some medical markets are characterized by a degree of market power, either as a consequence of government restrictions on entry or because the production process is characterized by high fixed costs and low marginal costs. Hospital services have fixed costs of capital and equipment, physician services have fixed costs of specialized training, and pharmaceuticals have fixed costs of research and development. Consistent with the existence of market power, health care suppliers often practice price discrimination, charging different prices for the same service to patients with different forms of insurance coverage. These patterns suggested that per unit costs of health care could be reduced.

The 1993 debate around the Clinton health plan highlighted the existence of inefficient service delivery and pricing. The plan proposed a new approach to service provision that was intended to eliminate these inefficiencies. It envisioned a shift toward a system characterized by competing managed care health plans. These plans would supplement modest cost sharing with additional mechanisms to improve system efficiency. The potential overall effect of these strategies was substantial. Before 1990, health maintenance organizations had been the principal users of these strategies, and their per capita costs had averaged about 10–15 percent below those of comparable traditional plans (Glied, 2000).

The additional mechanisms suggested by the Clinton plan included supply-side cost sharing, which shifts financial risks to health care service suppliers (Ellis and McGuire, 1993), more aggressive monitoring of service utilization, and negotiations by large purchasers. Supply-side cost sharing, in which providers may receive a fixed payment for a case or for providing all necessary care for a year to a specific patient, can yield significant savings. Medicare, for example, started reimbursing providers with a flat fee based on the “diagnosis-related group,” or DRG, in 1983. The introduction of DRG payment led to a 20 percent reduction in hospital costs by 1990 (a savings of about 3 percentage points per year; Coulam and Gaumer, 1991). A capitation or “per head” payment of providers can also reduce inpatient hospital utilization (Glied, 2000).

Another approach to providing a more efficient quantity is to monitor levels of service utilization directly. Monitoring may occur through requirements of preauthorization for specific services. Alternatively, comparisons of practice patterns among physicians or hospitals might be used to influence the selection of participating providers or may be used as a measure for incentive payments. Direct monitoring of utilization has the potential for eliminating some of the variation in health care costs and reducing the use of services with low medical effectiveness. Utilization management had proven successful in reducing costs in a few areas of medical care—most notably, inpatient and mental health services.

Finally, an alternative route to cost containment is to reduce the prices paid for

services. Medicare has always used its quasi-monopsony power to negotiate better-than-market prices with providers. Reductions in fee-for-service payment levels, however, were never completely successful in reducing expenditures because providers often responded through increases in volume. This phenomenon of “physician induced” demand meant that a fee reduction of 1 percent would only generate savings of about 0.5 percent in the Medicare program (Christensen, 1992). The introduction of the diagnostic-related group case-rate payment system for inpatient services showed how price reductions could be made more effective when combined with other controls, such as supply-side cost sharing.

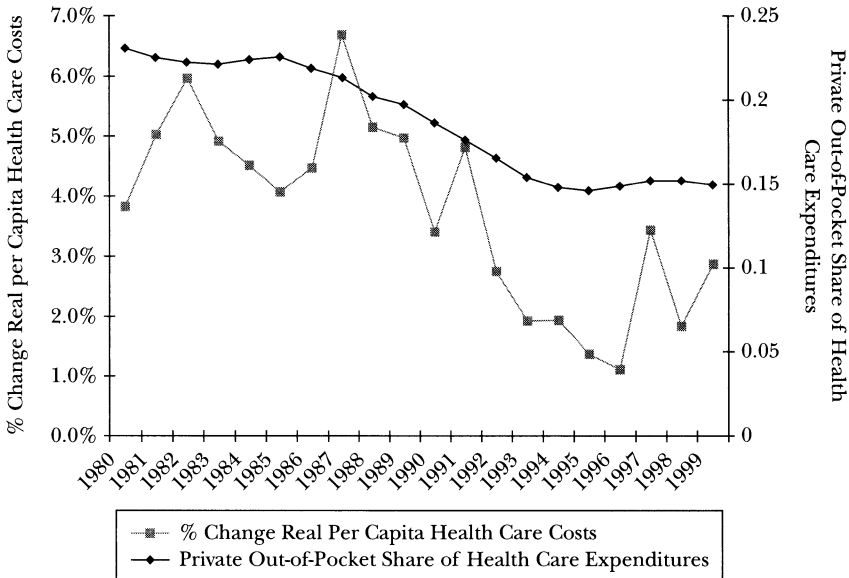
In some areas, health plans that contracted directly with providers, such as preferred provider organizations and some health maintenance organizations, had also demonstrated their ability to search for low-price suppliers and to negotiate discounted prices with those who had unused capacity. Considerable unused capacity existed in the system. During the 1990s, hospital occupancy rates nationwide averaged only 66 percent (National Center for Health Statistics, 2002). Between 1985 and 2000, the physician to population ratio rose by nearly 25 percent, with much greater increases in some specialties (National Center for Health Statistics, 2002). As the marginal cost of an additional patient in a functioning hospital or operating practice is quite low, the potential for achieving cost savings through such negotiated discounts was quite substantial.

Purchasers and suppliers of health care services, responding to these ideas and evidence—and to the threat of government intervention in the market—adopted these new strategies for controlling service delivery and costs. During the 1990s, these strategies became widespread in both private insurance and public programs. As Figure 1 shows, cost sharing, which had begun to fall as a share of health expenditures when costs accelerated in the late 1980s (diminishing the effect of fixed dollar deductibles and out-of-pocket maximums), fell further over this period, with the out-of-pocket share of total health expenditures declining from 16.5 percent in 1993 to 15 percent in 1997. By contrast, between 1993 and 1997, enrollment in managed care plans increased from 102 million (41 percent of the total insured population) to 172 million (76 percent of the total insured population) (Health Insurance Association of America, 2002). Even conventional fee-for-service plans adopted utilization review and price negotiation. In several studies conducted in the mid- and late 1990s, there were no longer any differences between costs or inpatient (or outpatient) service use patterns in health maintenance organizations and traditional indemnity plans (Krueger and Levy, 1996; Miller and Luft, 2002).

Because many of these strategies were so widely used in the 1990s, it is difficult to assess their independent effects on health care costs. Yet evidence suggests that they had important effects on the health care market, particularly through enhanced price competition and more price shopping. By the 1990s, the medical care arms race had disappeared. Markets with more hospital competitors had lower hospital prices than more concentrated markets (Kessler and McClellan, 1999).

In 1992, Medicare introduced a new payment system for physicians to eliminate the effects of “physician-induced” demand in the program. Under this new

Figure 1

**Out-of-Pocket Payments and Health Care Cost Growth**

Source: CMS (2002a).

payment system (modified further in 1998), increases in the volume of per-beneficiary Medicare physician services generate automatic corresponding reductions in prices, reducing the effect of physician induced demand on Medicare expenditures. With this new payment system for physicians, and the existing DRG payment system for hospitals, Medicare could effectively restrict total costs by reducing prices. The Balanced Budget Act of 1997, enacted in January 1998, did just that, cutting prices for these bundled payments and reducing expected Medicare payments by \$112 billion over the subsequent four years (MEDPAC, 2000).

In one comparison of fee-for-service plans and less costly managed care plans by the Group Insurance Commission (GIC) of Massachusetts, for example, after adjusting for health status differences, 90 percent of residual cost differences between the two plans were due to differences in prices paid for the same service, while only about 10 percent of the cost difference was due to differences in treatment intensity (Altman, Cutler and Zeckhauser, 2000).

Aggressive price searching used by health maintenance organizations and preferred provider organizations, along with the reductions in Medicare payments, have also led, indirectly, to reductions in utilization. Shrinking hospital profit margins may also have contributed to slower diffusion of technologies and to more intensive utilization of existing capacity.

Reforms were less successful in reducing inappropriate service utilization. Overall, utilization review has not been very effective in reducing variations in care and eliminating unnecessary outpatient service use. Plans continue to try to

improve the technologies they use to control service use, without intervening too much in the physician-patient relationship.

## **Health Care Costs in the Medium Term: The Underwriting Cycle**

The health insurance industry is characterized by cycles in which insurers typically experience about three years of profitability followed by about three years of losses (Gabel et al., 1994). Economic research in the property and casualty insurance and liability insurance markets reveals similar cycles, which appear to be endemic to the business of insurance (Winter, 1991; Gron and Lucas, 1995). Cycles apparently occur as insurers adaptively predict future health care costs based on current costs. When underwriting losses occur, insurance premiums are raised dramatically within a lag period of a few years, by more than the underlying concurrent change in the cost of health care. Conversely, when underwriting profits are high, health insurance premiums are soon reduced or held to small increases for a period of a few years at rates that are below the concurrent changes in the cost of health care.

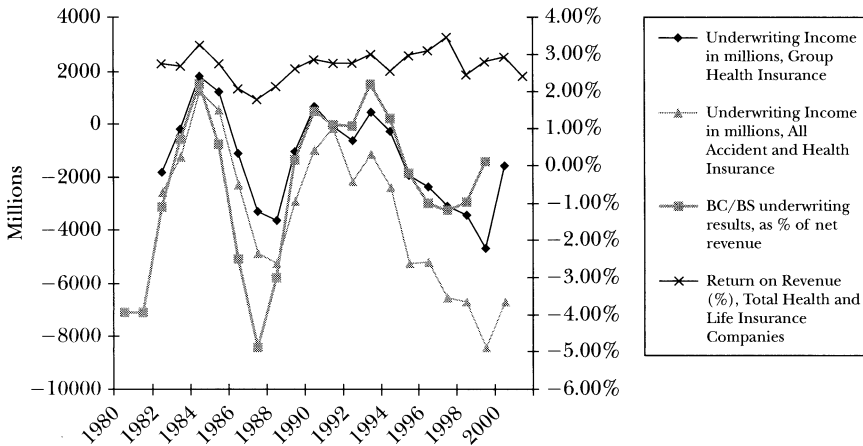
Figure 2 shows measures of insurer profitability. Underwriting results are directly available from nonprofit Blue Cross/Blue Shield insurers. We also use data from Best's Aggregates and Averages for total accident and health, including group health insurance underwriting income. However, the patterns are similar across insurer type. Beginning in 1993, insurers' underwriting profits began to fall steeply. These losses peaked in 1998–1999. In that year, for example, Aetna, the largest health care benefits firm in the United States, experienced a \$480 million underwriting loss (Best's Aggregates and Averages, 2001). The downturn in the cycle was unusually long during the 1990s, perhaps because the enormous shift from traditional indemnity coverage to managed care was happening over this period. Insurance management and shareholders appeared to believe that economies of scale in health insurance had become much more significant because of the growth of managed care. Some observers speculate that during this period, insurers were willing to forego short-term profits in pursuit of market share (Best's Review, 1999).

As Figure 2 suggests, high investment returns in the stock market, mainly associated with investments of premium income from life insurance contracts, permitted many companies that sold both health and life insurance to pursue market share while maintaining overall profitability. By 1998, underwriting losses in the commercial accident and health insurance industry (excluding Blue Cross/Blue Shield plans and HMOs) exceeded 2.1 percent of private health insurance payments (author's calculations based on Best's Aggregates and Averages, 2001; CMS, 2002a). Similarly, the difference between the peak and trough of the Blue Cross underwriting cycle means that while in 1993, Blue Cross/Blue Shield plans earned 2 percent of net revenue in underwriting profits, in 1997, they lost 1 percent of net revenue in underwriting losses.

The downturn in the underwriting cycle over this period can explain about



Figure 2

**Net Underwriting Income and Profitability**

Source: Hogan, Ginsburg and Gabel (2000); Gabel et al. (1991); Best's Aggregates and Averages (2001); Best's Aggregates and Averages (1993).

15 percent of the difference between expected and actual health care costs in the private insurance market. As Table 1 shows, private insurance covered 63 percent of Americans in 1999 and paid for about one-third of total health care expenditures in 1999. The underwriting cycle, however, had some spillover effects on the cost of care in Medicare, which covers 13 percent of Americans and pays 19 percent of costs, and especially in Medicaid, which covers 7 percent of Americans and pays 16 percent of costs. Over this period, Medicare and, especially, Medicaid substantially increased beneficiary enrollment in private managed care plans. For beneficiaries enrolled in managed care, this shift in the direction of transfers from insurance companies to purchasers also affected the cost of public coverage. Medicare is only indirectly affected by private health insurer behavior because Medicare payments to health plans, on a per capita basis, are set based on a formula that does not take private costs into account. Private plans compete to attract Medicare enrollees by offering augmented benefits (such as prescription drug coverage or lower co-payments). The reduction in underwriting profits meant that plans were offering more generous coverage to beneficiaries than would otherwise have been the case and enticing more of them to leave the traditional fee-for-service program. From 1993 to 1999, managed care enrollment in Medicare increased from 2.7 million to 6.9 million (CMS, 2002b). To the extent that Medicare saves money when beneficiaries select private managed care plans rather than the fee-for-service program (a disputed point), these increases in enrollment may have saved money for Medicare. More recently, private plans, demanding higher returns, have pulled out of the Medicare market, suggesting that any savings to the program realized through underpricing of private plans in the 1990s have disappeared.

In the Medicaid program, spillovers from changes in underwriting were more

*Table 1*  
**Health Care Payers in 1999**

<i>Payer</i>	<i>% of Americans covered<sup>a</sup></i>	<i>% of National personal health expenditures paid by this source<sup>b</sup></i>
Private health insurance	63.3%	34.4%
Medicaid	7.1%	16.3%
Medicare	12.9%	19.4%
Other coverage	—	12.6%
Uninsured	14.0%	—
Self/Family (This included co-payments and uncovered expenses)	n.a.	17.3%

<sup>a</sup> March 2000 Current Population Survey.

<sup>b</sup> CMS (2002a).

direct. In Medicaid, private managed care plans compete for state contracts. Thus, energetic price competition between commercial managed care plans—and simultaneous transfers from shareholders to policyholders—generates direct savings for Medicaid programs. Between 1991 and 2001, 17.5 million Medicaid beneficiaries enrolled in managed care, and by 1997 over 56 percent of all Medicaid beneficiaries were enrolled in managed care (CMS, 1997b, 2001b). Beginning in 1997, however, commercial managed care plans began to exit from the Medicaid market, suggesting that public savings from plan underpricing have also disappeared in this market.

Insurer profits account for only a small fraction of national health costs, so the underwriting cycle has limited effects on total expenditures. Fluctuations in the cycle are, however, important in explaining year-to-year variations in private health insurance premiums, the most visible indicator of changes in overall health costs. For several years in the mid-1990s, large employers actually saw some declines in health insurance premiums. In the 1990s, when public payers were increasingly contracting with private plans to provide care to beneficiaries, there were also spillover effects of the private underwriting cycle into the public sector. The ability of Medicaid programs—which had typically paid fees well below the private market—to realize savings by switching to managed care was due, at least in part, to the willingness of private managed care plans to accept underwriting losses on their business.

### **Health Care Costs in the Long Term: Technology**

Victor Fuchs (1996) found that 81 percent of health economists in his survey agreed: “The primary reason for the increase in the health sector’s share of GDP over the past 30 years is technological change in medicine.” This thesis is well supported by aggregate comparisons over time.

Data on health care costs have been collected since 1929. Throughout this period, there has been very little variation in the annual rate of growth in per capita real health expenditures (adjusted by the Consumer Price Index). Health costs rose at about the same rate before 1965, when over 44 percent of health expenses were paid out of pocket, and increased only a little more rapidly in the 1965–1970 period, immediately after the introduction of Medicare and Medicaid. During the 1970s and 1980s, when the share of expenses paid out of pocket had fallen below 25 percent and governments paid 40 percent of all health expenditures, costs again rose at about the same average annual rate (CMS, 2002a).

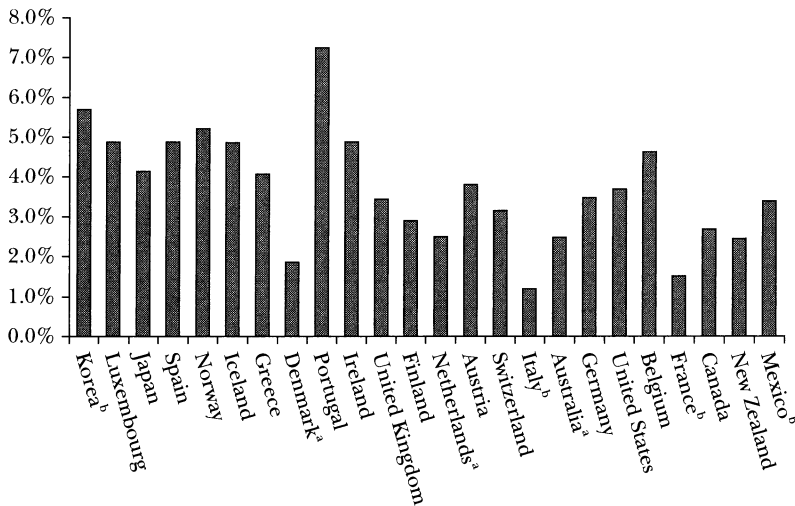
U.S. health expenditures per capita are much higher than those in other developed countries—over 40 percent higher than those in Switzerland, the second most costly country. Yet rates of growth in expenditures have been quite similar across the widely divergent health care systems of other developed countries. All developed countries other than the United States have universal health insurance coverage, but they differ significantly amongst themselves in the organization of their health care financing and delivery systems, ranging from a government-run national health service in Great Britain to a private market system with an individual mandate in Switzerland. Figure 3 shows per capita annual real rates of health care cost growth for OECD countries, converted to U.S. dollars using purchasing power parity exchange rates and adjusted to constant dollars using the U.S. Consumer Price Index, between 1970 and 2000 (or in some cases, for the longest period for which data are available). Countries in Figure 3 are listed from left to right by growth in per capita income since 1970. Countries such as Portugal and Korea, whose per capita income grew much more rapidly than the United States since 1970, have also experienced faster growth in health care costs. But among those countries, such as Canada and the United Kingdom, which have income growth rates similar to that of the United States but operate very different health care systems, the rate of growth in health care costs has been similar to that of the United States.

This evidence of comparable rates of growth of health care costs in U.S. history through many different policy regimes and across developed countries that operate many different types of health care systems suggests that no particular characteristic of any health care regime is the main determinant of growth in health care costs. Rather, the introduction and diffusion of new, costly developments in medical technology is the most likely explanation (Newhouse, 1992; Glied, 1998). Although technological improvements in other sectors generally lead to falling prices and often to declining expenditures, innovation in health care typically generates increased expenditures.

This increase in expenditures is due to an expansion in demand that may occur for two related reasons. First, improvements in the health outcomes produced by a medical service mean that more patients can expect to obtain health benefits from the technology. Innovations in cardiac care, for example, the development of effective surgical techniques to open clogged arteries in patients who had suffered heart attacks, led to the application of these techniques to patients

Figure 3

## Per Capita Growth Rate of Health Care Costs



Source: OECD health data 2002.

Note: Countries are listed in order of per capita income growth, from left to right, where income growth is adjusted by purchasing power parity and by the Consumer Price Index.

<sup>a</sup> Health care growth rate is for 1980–1999.

<sup>b</sup> Health care growth rate is for 1990–1999.

with clogged arteries who were at risk for heart attacks—although many of these patients might never have had heart attacks (or related symptoms) even without the treatment. In 2000, nearly one million Americans had heart bypass surgery or angioplasty, while just over 750,000 had heart attacks. This type of expansion of the market led to a net increase in inpatient expenditures associated with heart attacks and heart disease from \$5.37 billion (2000 dollars) in 1977 to \$19.4 billion in 1996.<sup>1</sup>

Second, innovations in medical care, especially cost-reducing innovations, often reduce the invasiveness and intensity of the treatment itself and thus reduce the pain, discomfort or time associated with treating a particular condition, even when outcomes do not improve. This reduction in the often substantial nonmonetary costs of treatment also expands the size of the market. For example, a new class of antidepressants, the selective serotonin reuptake inhibitors (SSRIs), has fewer side effects and is easier to prescribe than traditional antidepressants, but is not notably more effective (Department of Health and Human Services, 1999). Since this new class of antidepressants was introduced, the prevalence of treated

<sup>1</sup> The figures on numbers of Americans who underwent heart bypass or angioplasty in 2000 are author's calculations based on the Healthcare Cost and Utilization Project (HCUP), 2000. Expenditures on heart disease treatment are from author's calculations based on the 1977 National Medical Care Expenditure Survey (NMCES) and the 1996 Medical Expenditure Panel Survey (MEPS), with the estimates then adjusted to 2000 dollars.

depression has increased from .73 per 100 persons in 1987 to 2.33 in 1997 (Olfson, 2002). Although the per case cost of treating depression fell by approximately 2 percent per year over the 1991–1996 period (Berndt et al., 2000, p. 27), total costs of treating depression have increased. Between 1987 and 1996, the case cost of treating depression declined from \$2,012 (2000 dollars) to \$1,073, but the aggregate cost of care for depression increased from \$4.83 billion to \$9.22 billion, because four million more people were receiving care for depression in 1996 than had been nine years earlier.<sup>2</sup> In sum, the case study data support the broader comparisons indicating that technological change is the prime cause of expenditure growth.

Greater expenditures that follow the introduction of a new treatment technology might simply reflect adoption of a more costly way of delivering the same health care services—that is, the new technologies represent only inflation in the cost of providing health care. Several studies conducted in the past decade have suggested, instead, that although the measured price of medical services has been rising, the quality adjusted cost of medical treatment for many widespread conditions, such as those described above, has declined (Triplett, 1999). For example, Cutler et al. (1998) found that the conventionally measured price index for treating heart attacks has been increasing as a consequence of the substitution of new, costlier treatment modalities (such as bypass surgery and, later, angioplasty) for less costly treatments (such as drugs and monitoring). However, the value of the improvement in life expectancy associated with these new treatments more than compensated for the increased cost of treatment. Frank, Berndt and Busch (1999) found that changes in the treatment of depression following the introduction of selective serotonin reuptake inhibitors improved depression outcomes by enough to generate a decline in the price index for depression treatment. Shapiro, Shapiro and Wilcox (2001) found that the development of a new surgical technique for cataract treatment improved outcomes without increasing costs. The difference between the standard price index measure and the quality adjusted treatment cost measure is, in each case, a consequence of the substitution of new, better technologies for older ones.

These technological developments in health care appear similar to those in other sectors in the sense that, without accounting for concurrent quality improvements, some of the new technologies cost more per unit than the technologies they replace (such as bypass surgery compared to medical management of high blood pressure), while many other treatments cost the same or less (such as angioplasty compared to bypass surgery; the new antidepressant drugs compared to psychotherapy; or outpatient cataract surgery compared to inpatient surgery). Nonetheless, in each case, whether the technology was more costly or not, total expenditures associated with the treatment of the underlying condition increased with the introduction of the new technology. In fact, since new technology often causes the quality adjusted price index for health care to fall, the rise in expenditures is a

<sup>2</sup> Cost estimates are based on author's tabulations of the 1987 National Medical Expenditure Survey (NMES) and the 1996 Medical Expenditure Panel Survey (MEPS) (ICD-9 codes 410–417).

downward-biased estimate of the rise in the actual quantity of health care services delivered.

Technological improvements in health care certainly occurred during the 1990s, but unlike in preceding decades, their impact on expenditures was concentrated in the pharmaceutical sector. Pharmaceutical spending grew at an average rate of 7.5 percent per year during this period, about twice as quickly as overall health spending (CMS, 2002a). Much of this increase was due to new “blockbuster” drugs introduced over this period. In 1999, 40.8 percent of total pharmaceutical costs were for drugs introduced since 1992 (Teitelbaum et al., 2002). These cost increases had relatively little impact on overall expenditures, however, because in 1993, pharmaceutical spending still constituted only 6 percent of total spending on health services and supplies (CMS, 2002a). Also, some evidence suggests that higher pharmaceutical spending leads to lower spending in other sectors of health care (Lichtenberg, 2002b).

The relentless advance of medical technology contributed less than usual to the growth of health care costs in the 1990s, but a return to the more typical pattern of technology contributing to faster growth of health care costs seems likely in the future.

## **Explaining the 1990s and Beyond**

The mid-1990s were an anomalous period in the history of U.S. health expenditures. The persistently low cost growth in this period was owed to a fortuitous combination of good news in the short-term, medium-term and long-term factors contributing to health care cost growth.

Expenditure-increasing gains in medical technology in the 1990s were being made mainly in pharmaceuticals, which contributed relatively little to direct health care costs and may even have helped to hold down hospital and other expenses. The insurance underwriting cycle was at a trough through the mid-1990s, as insurers competed for market share. Losses to insurance company shareholders translated into lower premiums for insurance policyholders, a process that spilled over into Medicare and Medicaid. Finally, during the mid-1990s, managed care plans, conventional insurers and public programs were adept at bargaining with health care providers and adopted a variety of strategies to control service use. Utilization of most services remained quite level over this period, despite declines in the out-of-pocket share of payments, but prices paid to providers fell. This transfer from health care providers to health care consumers likewise led to reductions in aggregate spending growth.

But the serendipitous union of narrowly targeted technological change, fierce competition among insurers and substantial provider discounts that produced the cost slowdown of the 1990s is over. Since 1999, health care costs have grown at an average annual inflation adjusted per capita rate of 4.5 percent (CMS, 2002a). Private health insurance premiums are expected to increase by about 7.5 percent in 2003 (Heffler et al., 2002).

Unlike the pattern in the mid-1990s, cost-increasing technological change in medicine is no longer confined to the relatively small pharmaceutical sector. Since 2001, hospital outpatient spending—16 percent of total costs—has been the fastest growing component of cost growth. In 2001, hospital inpatient, hospital outpatient and prescription drugs all grew at annual rates exceeding 7 percent (Strunk, Ginsberg and Gabel, 2002).

The underwriting cycle is now pushing costs up, not down. The focus on insurers holding down premiums to increase market share appears to have dissipated. Large insurers have walked away from Medicare, Medicaid and private contracts that did not generate sufficient profits. This shift means that transfers now flow from policyholders to shareholders, rather than, as was the case in the late 1990s, from shareholders to policyholders.

The utilization control strategies of the 1990s have come under political and analytic fire. Aggressive monitoring of service provision irritates providers and consumers by interposing a third party into the physician-patient relationship. Monitoring utilization can, itself, be costly for both insurers and providers.

Consumer advocates argue that providing suppliers with financial incentives to reduce utilization is a dangerous strategy. Of more direct consequence for costs, it can be circumvented by shifting to services or settings outside the fixed payment. For example, in response to reimbursement under Medicare's diagnosis-related groups, hospitals discharged patients earlier to skilled nursing facilities whose services were not included in the fixed payment. Thus, while the DRGs led to a decline in the growth of Medicare hospital spending growth declined, it led to a rapid increase in payments to skilled nursing facilities. In the decade prior to DRG payments, increases in payments to skilled nursing facilities and home health care accounted for 3.5 percent of total Medicare cost growth. In the decade following the introduction of DRG payments, increase in payments to these providers accounted for 8 percent of Medicare cost growth (Liu et al., 1999). Broadening the scope of what is covered by the capitation payments can mitigate this type of problem, but analysts worry that it will lead to underprovision of care and create substantial incentives for provider selection of less costly patients (Newhouse, 1996). In response to the "managed care backlash," many private sector plans have given up these strategies, trading aggressive utilization management and provider incentives to reduce care in favor of more (though still relatively low) cost sharing (Draper et al., 2002).

Similarly, private insurers and public programs are unlikely to repeat their success at reducing expenditures through cutting prices paid to providers in the near future. Federal policymakers are facing pressure from provider interest groups to give back some of the Medicare fee reductions legislated in the Balanced Budget Act. Although the Balanced Budget Refinement Act of 1999 eased some of the restrictions on reimbursement growth, some providers, particularly physicians, fear the low reimbursement rate and growth could drive them out of business (Palmisano, 2002). The potential to realize savings through provider discounts may also be diminishing as mergers and consolidation reduce the number of competitors in

hospital markets (Kessler and McClellan, 1999; Cunningham, 2002). Consumer demand for the physician of their choice also limits the ability of health plans to negotiate discounts by promising to steer large numbers of patients to particular practices or hospitals.

Prominent government forecasts anticipate that growth in health care costs is likely to continue, because the unusual confluence of forces that generated a slowdown in the mid-1990s is unlikely to recur. For example, federal actuaries anticipate that Medicare costs will rise 16 percent by 2005, while projections of national health care costs suggest that expenditures will exceed 15 percent of GDP by 2003 and reach 17 percent by 2011 (CMS, 2002c).

### **The Short-Term Prospects for Better Control of Health Care Spending**

Purchasers of health care services, both private and public, are once again seeking ways to control spending. The most common responses by private plans have been to increase the employee share of health insurance premiums (which leads some employees to forego coverage altogether) and to introduce multitiered cost sharing formulas for pharmaceuticals and, more recently, hospitals (Gabel et al., 2002b). Under multitiered cost sharing, consumers make a larger copayment for brand name drugs (or drugs purchased through nonparticipating providers) and a lower copayment for generic drugs (or preferred providers). These arrangements allow plans to couple some of the benefits of demand-side cost sharing with the energetic rate negotiations that have been the principal source of managed care cost savings.

The increase in cost sharing has also led to a renewal of interest in “catastrophic” coverage plans that incorporate much higher deductibles. Such plans often go under the name of “medical savings accounts,” where a household would save money in an account that would be used to pay a large deductible—but the household would be able to spend at least some of this money for other purposes if it was not used for health care. The favorable tax treatment of employer sponsored insurance premiums, but not out-of-pocket medical care payments, has been an impediment to the development of these plans. Instead, growth in health care costs has led to a proliferation of alternative strategies for cost containment, such as managed care during the 1990s. Legislation to permit the establishment of tax-sheltered medical savings accounts in small businesses and new U.S. Department of Treasury regulations that permit funds in certain types of existing tax-sheltered employer paid accounts to be rolled over from one year to the next may offset these impediments.

Existing estimates of the potential savings from high-deductible coverage, based on the RAND estimates, may overstate the potential savings in today’s medical environment. Much of the savings from higher cost sharing in the RAND study came from lower rates of hospital service use. Average rates of hospital use



among privately insured people today, however, are just over half as high as those in the high cost sharing plan in the 1970s. Beginning at this much lower base, it may not be possible to reduce admissions to hospital and length of stay by as much as was possible in 1977 through increased cost sharing. There is little evidence on the effect of new high-deductible plans on spending now because to date, plans with high deductibles have not gained substantial numbers of new adherents (Gabel et al., 2002a).

Two aspects of the private market response to rising costs have implications for public policy. First, several studies show that increases in health care costs reduce the number of people who obtain private health insurance coverage. A \$1000 increase in inflation-adjusted individual premiums is associated with a decline of 3.9 percentage points in the number of Americans who hold private coverage (Chernew, Cutler and Keenan, 2002; see also Kronick and Gilmer, 1999). In theory, increases in health care costs should increase the value of coverage, not diminish it (Cutler, 2003). If costs rise because of the development of new technologies, people who do not wish to pay for these technologies should be able to buy coverage that excludes them (Council of Economic Advisers, 1993). In practice, insurance contracts rarely if ever exclude new technologies that have been proven medically effective. Some purchasers may, therefore, decline coverage because they do not value the packages available at their cost. Alternatively, declines in coverage that follow increases in health care costs may be a consequence of shifting from private coverage to public “safety net” coverage (Cutler, 2003). Both parties in Congress and President Bush have declared their intention to assist the uninsured in obtaining coverage. These efforts are stalled, however, over disagreements about financing and about the form that such coverage expansions should take. Democrats generally prefer expansions of existing public insurance programs, such as Medicaid and SCHIP (the State Child Health Insurance Program through which the federal government provides funding to states to cover the cost of insurance for children in families with incomes above the Medicaid limit). Republicans generally prefer expansions that provide subsidies for the purchase of individual private insurance coverage.

A second major public policy concern is increased fragmentation of the private health insurance market. Private health insurance markets currently exhibit a substantial degree of risk pooling among people with higher and lower expected health care costs, but higher health costs may diminish this risk pooling. Newhouse (1996) suggests that the persistence of risk pooling may be a consequence of the high cost of writing contracts that would induce selection into groups with greater and lesser health care expenditures, relative to the savings that low-risk people could attain from leaving the pool. As the costs and concentration of health expenditures increase, this calculus will change in favor of more selection. There is a flurry of interest in health plans that use the Internet and other new communications technologies to permit enrollees to tailor their own benefit packages and provider networks (Gabel et al., 2002b). The development of these plans may be a manifestation of these increased rewards to selection.

Since long-term contracts for health insurance coverage do not now exist, people cannot obtain coverage against the risk of developing an adverse health condition (Cochrane, 1995; Pauly and Herring, 1999). As more fragmentation raises the price of health insurance to those who develop adverse health conditions, the absence of such long-term coverage becomes increasingly harmful. In response, many states regulate the variation of prices in individual insurance markets, through partial or full community rating under which prices may not vary to reflect health risks or other characteristics. Such regulation, however, may lead to adverse selection spirals. Other states have developed high-risk insurance pools, often partially subsidized, that provide some coverage to those who cannot obtain private insurance. To date, however, few of these high-risk pools have been very successful in reducing the number of high-risk uninsured people (Achman and Chollet, 2001).

Increases in the number of people who lack private coverage—particularly when these people are at high risk for illness—means increased demand for Medicaid and SCHIP coverage. This increase in demand, coupled with the decline in private insurer participation in these programs and the growth in the cost of care for all existing beneficiaries, strains these state programs. Medicaid and SCHIP have been the main vehicle for coverage expansions over the past 15 years, but as health care costs increase, further expansions have been put on hold. The effect of rising costs has been exacerbated by the dramatic decline in state revenues in 2001 and 2002.

One direction that states may adopt is to provide new health insurance coverage with more limited benefits than in traditional public programs. In one prominent example, the state of Oregon's Medicaid program has developed a priority ranked list of diagnosis-treatment pairs. Each year, the legislature determines how far down the priority ranking its budget will stretch (Leichter, 1999). More recent state efforts to reducing the scope of benefits take a simpler and more direct approach. In Utah, for example, a new program provides primary care and limited prescription drug coverage—but no inpatient or specialty services—to low-income uninsured people for a low annual fee (Lueck, 2002). Hospitals and specialists are expected to donate care where necessary, but they are not obliged to do so.

In the Medicare program, cost increases for existing services make it more difficult to pass legislation that would broaden the scope of benefits to include pharmaceutical coverage. Adding prescription drug coverage has been a program priority since (at least) the mid-1980s, but any such expansion seems unlikely while program costs are growing 50 percent faster than the overall economy (CMS, 2002a). Rising cost growth also threatens Medicare's strategy of increasing commercial plan participation in the program. Since 1996, commercial plans have begun to pull out of the Medicare market. Between 1996 and 2000, the number of participating health plans fell by 28 percent (CMS, 1997a, 2001a). Declining participation of private plans reduces the prospects for competition within the Medicare program, which may be critical to improving the program's efficiency (Cutler, 2000).

Incremental changes in the structure of private contracts or the forms of

public programs are likely to have only modest effects on health care costs and coverage. The potential for further savings through price negotiations and new incentive structures for providers also appears limited. Yet some of the inefficiencies noted in the run up to the Clinton plan in the early 1990s—notably, variations in the utilization of medical care and inappropriate service use—remain. The development of new organizational technologies that might reduce this ineffective utilization could set off another round of cost savings in medical care.

Ultimately, reductions in payment to providers, strategies to control utilization and changing phases of the underwriting cycle all act only to provide one-time or short-term offsets to the effects of technological change on the growth of health care costs. The upward pull of health technologies means that any savings achieved at a point in time are soon swamped by new expenditures. Nonetheless, the overall magnitude of health spending is so great that even small reductions in the base have considerable value.

### **The Long-Term Challenge of Financing Health Care Technology**

Technological change is not exogenous to the structure of the health care system. As the scope and generosity of insurance coverage increases, the market for new health technologies expands. Entrepreneurs are likely to react to these expanded markets by increasing innovation. The pharmaceutical market offers some empirical evidence of this type of response, where the development of drugs to treat conditions that occur in the elderly accelerated following the passage of Medicare (Lichtenberg, 2002a). As new technologies are developed, and the cost of health care increases, the demand for insurance coverage also expands, generating additional cost pressures (Weisbrod, 1991).

This cycle in which insurance encourages innovation and innovation encourages insurance raises questions about whether some health procedures are being demanded or some technologies are being produced at inefficiently high levels, because the presence of insurance is leading to a situation where private parties are paying only a share of the social costs of a new technology (Goddeeris, 1984; Weisbrod, 1991). Moral hazard of this type can, in theory, bias the direction and rate of technological change, prompting the development of technologies whose benefits do not, on average, exceed their costs.

Contracts, such as managed care arrangements, that incorporate techniques to improve the allocation of costly technology—including insurer oversight of utilization and incentives for physicians to reduce the cost of care—should reduce the extent of these biases (Baumgardner, 1991). Some recent evidence examines the rate of technological innovation and diffusion in the United States under managed care contracts, in contrast to fee-for-service insurance regimes. Managed care contracts do appear to lead to slower diffusion of technology, but there is only very limited evidence of slower rates of technological introduction induced by managed care (Glied, 2000). This finding may be a consequence of the short history or

incomplete penetration of this form of insurance. The evidence that rates of technological growth have not varied substantially over time through differing insurance regimes or across countries, however, suggests that bias induced by the form of insurance contracts is not a critical factor in explaining cost growth. Furthermore, the rapid rates of innovation and expenditure growth in uninsured sectors of health care—from the patent medicines and whole-grain cereals of the nineteenth century to the botox treatments and alternative medicines of today—suggest that the demand for technological innovation to improve health is enduring and robust.

A final strategy for controlling the quantities of health care used involves more aggressive control of the introduction and diffusion of new technologies (since these are the prime causes of long-term cost growth). Many European countries make use of formal cost-effectiveness analysis processes to define the package of benefits and technologies included in their health plans. The Oregon Medicaid experience, however, suggests that this approach may not be very effective in the U.S. context. Oregon's rationing model did not turn out to be notably successful in containing health care costs. In the first five years, prioritization is estimated to have saved the state only 2 percent of total costs (Jacobs, Marmor and Oberlander, 1999). Besides the technical difficulty of assessing the cost-effectiveness of ever-evolving therapies for heterogenous patient populations, maintaining a program of health care rationing is politically challenging. Once a technology has been introduced, patients who believe they can benefit from it seek exceptions. In Oregon, vanishingly few patients were prevented from obtaining a treatment by the state's rationing process (Leichter, 1999).

While there is reason to favor large payers like managed care organizations and the federal government taking a hard look at new technologies, there is also reason to believe that, on the whole, the public is well served by the expansion of health care technologies that bring with them longer life, improved quality of life and lower nonmonetary costs of medical treatment. Indeed, at least in theoretical models with perfect information and full contingent contracts, there is nothing necessarily undesirable or inefficient about this cycle of innovation and increased use of the resulting health care technologies (Zeckhauser, 1970; Nyman, 1999).

Table 2 illustrates how three potential health improvements might affect cost growth. Between 1980 and 1999, life expectancy at age 65 increased by 1.3 years, from 16.4 to 17.7 years (National Center for Health Statistics, 2002). It is very difficult to determine how much of this change is due to medical improvement alone, but several studies suggest that it is likely to be 50 percent or more.<sup>3</sup> The present value of a set of technological innovations that, over the coming 20 years, generated an increase in life expectancy at 65 half as large as that between 1980 and

<sup>3</sup> For example, Murphy and Topel (2003) find that more than 50 percent of the total increase in life expectancy is due to changes in heart disease, and Cutler and McClellan (2001) find that 70 percent of the increase in life expectancy for heart disease patients is due to medical technology.

Table 2

**Health Care Cost Growth Implications of Potential Technological Improvements**

	<i>Magnitude of Improvement</i>	<i>Present Value of Improvement Per Capita<sup>a</sup></i>	<i>Baseline Health Expenditure for Group<sup>e</sup></i>	<i>Implied Maximum Acceptable Rate of Real Per Capita Cost Growth</i>
Increase life expectancy at age 65	From 17.7 to 18.35 years by 2020 (1/2 the increase from 1980 to 1999)	\$17,990 (based on \$50,000 per year of life at end of life) <sup>b</sup>	\$11,884	4.6%
Reduce years of life lost before 65	From 0.047 years per person to 0.033 years per person (equal to the improvement between 1980 and 1999)	\$776 (based on \$100,000 per year of life lost before age 65) <sup>c</sup>	\$ 3,651	1.0%
Reduce morbidity	Average health status improves from 0.822 to 0.842, about 1/50 of a QALY, phased in through 2020	\$14,160, based on a benefit of \$2000 per year, phased in through 2020 <sup>d</sup>	\$ 4,637	7.0%

<sup>a</sup> 3 percent discount rate.

<sup>b</sup> A conservative estimate from Nordhaus (2002). Calculated by using the .5 estimate for the value of a year of life at age 80 and assuming that a year in perfect health was \$100,000.

<sup>c</sup> Murphy and Topel (2002) and Cutler and Richardson (1999).

<sup>d</sup> Cutler and Richardson (1999) show that morbidity associated with many diseases fell during the 1970–1990 period and that for given medical conditions, quality-adjusted health has increased (1997). Using a similar method, we estimate the average quality of life in the U.S. population is about 0.82 of perfect health. We use the 2000 National Health Interview Survey (NHIS). The NHIS rates health on a scale of one (excellent) to five (poor). We estimated an ordered probit of the effects of 31 health conditions, age, sex and work loss on health status. This set of variables roughly matches criteria for different health states outlined in prior research (Brazier, Roberts and Deverill, 2002). Based on this estimate, we predict that the average health status for the population is 0.822, or approximately “very good.” Using a much more refined method in a smaller U.K. population, Brazier, Roberts and Deverill (2002) estimate mean health status was 0.827.

<sup>e</sup> 1998 MEPS estimates inflated to match National Health Accounts.

1999—from 17.7 to 18.35 years—would be \$17,990 per person (based on a value of \$50,000 for a year of life at age 80). If these technological innovations generated real per capita health cost growth at a rate as high as 4.6 percent per year, they would still be viewed as cost-beneficial. Similarly, a reduction in premature mortality—years of life lost under age 65—similar to that between 1980 and 1999 would be cost-beneficial if it generated cost growth as high as 1.0 percent per year (based on a value of a year of life below age 65 of \$100,000). Reductions in morbidity would be even more valuable. Between 1970 and 1990, the health related quality of life of 65-year-olds increased by about 4 percentage points (Cutler and Richardson, 1999). A 2 percentage point improvement in average health status (about 1/50 of a quality adjusted life year), phased in over 20 years, would be cost-beneficial, even

if costs grew at 7.0 percent.<sup>4</sup> While it is impossible to predict the form and nature of future technological change, these figures suggest that welfare-improving changes in health care technology could be consistent with high rates of per capita health care cost growth.

The enormous potential benefits of further improvements in health mean that health care costs are likely to continue growing faster than national income into the foreseeable future. On average, given the extraordinary costs of illness and premature death, society is better off exchanging more money for better health.

Expenditure-increasing technological improvement is likely to continue into the future and does not appear highly responsive to policy changes. Incorporating these valuations into policy decisions implies sustaining a substantial, and ever-increasing, amount of redistribution (Glied, 1998; Cutler, 2002). As the costs of private coverage rise to incorporate new health care technologies, the numbers of people who lack private coverage will also increase. Higher costs may also encourage fragmentation of the market, leading healthier people to select health plans that exclude sicker people and leaving those with serious health problems to bear a greater share of their own costs. As the costs of public coverage rise, so will the amounts of revenue needed to cover existing beneficiaries. Increases in public costs will also limit the ability of the public system to extend coverage to those uninsured. The unique public policy challenge of health care is the problem of maintaining some degree of equity in the face of technological change that persistently increases the cost of meeting that goal.

■ *Excellent research assistance by Kathrine Jack and Sarah Little is gratefully acknowledged. David Cutler, Joshua Graff Zivin, Warren Greenberg, Dahlia Remler and the editors of this journal provided many helpful suggestions.*

<sup>4</sup> A quality adjusted life year is a measure of a year of life weighted by the quality of life during that year (Gold, Siegel, Russell and Weinstein, 1996).

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