Health care cost inflation and health care quality are inseparable issues.

Managing Health Care Costs and Quality

The continuing rise in national health care expenditures—which currently account for more than 11.5 percent of U.S. Gross National Product—has led to speculation that employer health care cost management efforts have failed. This may be misleading, however, because employers have not been as aggressive in adopting cost management strategies as is often assumed. For example, most employer-sponsored health plans have not raised their deductibles or altered their coinsurance rates in the last four years, and more than 35 percent do not offer a health maintenance organization option.

Health care cost management strategies are attempts to correct for market failure. Costs would continue to rise for a number of reasons, including the changing demographics of the work force, the labor-intensive nature of health care services, and the introduction of new technology, even if the health care services market functioned perfectly. The market fails because the mix of services provided is not necessarily that which fully informed consumers would wish to purchase and because the services are not produced at minimum cost.

The sources of health care cost inflation relate to the allocation of risk. The spread of health insurance has increased the demand for health care services and stimulated the development of new procedures. Hospitals and physicians, reimbursed on a per-service basis, are quick to adopt new technology, which increases the number of services they can provide and raises their costs. The increased prices of health care services in turn increase consumer demand for health insurance. The tax preferences afforded health insurance mitigate the effect of increasing premiums on the demand for coverage.

Health care cost inflation and health care quality are inseparable issues. Thus, the development and implementation of effective quality assessment is essential if costs are to be managed. There are currently no market mechanisms to evaluate the benefits of new or existing treatments against their costs. The challenge for public policy is to promote both the research to evaluate quality of care and the incentives for providers to adopt cost-effective practices.
Introduction

National health care costs continue to rise, increasing by 8.5 percent in 1986 and 9.8 percent in 1987. With medical expenses estimated at $541 billion in 1988 (chart 1), the United States now spends more than 11.5 percent of its Gross National Product (GNP) on health care.

A number of recent newspaper articles have suggested that after a decade of cost containment attempts, nothing has worked. The idea that there has been a decade of sustained cost containment effort may be misleading, however. Effective cost management initiatives have not been as widely adopted as press reports would seem to indicate. Furthermore, it is not clear that the success or failure of individual cost management strategies can be assessed by looking at aggregate changes in health care costs.

The major public cost containment effort in recent years has been Medicare’s prospective payment system (PPS), which changed hospital reimbursement under Medicare from a cost-plus, per-diem basis to a prospective, per-case basis. However, treatment for psychiatric conditions is exempt from this policy, and the system allows a pass-through for capital costs. Aside from PPS, Medicare and Medicaid have relied on reducing reimbursement to providers and have imposed few, if any, controls on the utilization of health care services.

Private payers have developed a number of cost management strategies, but they have not been as

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1 Under cost-plus methodology, hospital reimbursement is determined on the basis of a hospital’s historic costs.

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![Chart 1: Growth in Nominal and Real National Health Expenditures, 1970–1988](chart.jpg)

widely adopted as is generally assumed. Estimates of the percentage of insured employees indicate that more than 70 percent of privately insured individuals are in plans that do not have a preferred provider organization option, and more than 35 percent do not have a health maintenance organization option (calculated from table 1). Until recently, most plans did not have utilization review measures. Although the percentage of insured individuals in plans with preadmission review doubled in the last two years to 63 percent, less than one-half are in plans with concurrent review. Most employers have not raised their deductibles or altered their coinsurance rates in the last four years. A recent article on cost sharing concludes that “most firms are not aggressively restructuring workers’ insurance plans in ways known to result in more cost-effective use of medical care” (Jensen et al., 1987).

The adoption of employer health care cost management initiatives is limited by the individual employer’s lack of significant market power in the health care services field and the competitiveness and demographic characteristics of the company’s labor market. The effect of health care cost inflation is similar to a tax on labor. An individual employer’s response to this “tax” depends on the employer’s labor market and product market as well as on the local market for health care services. Most economists agree that, in the long run, labor bears the burden of health care cost inflation, but in the nearer term this inflation may force some employers to face labor costs higher than those of their competitors. Employers adjust their insurance plans to meet their own particular set of circumstances. Aggregate changes in health care costs may not reflect the success or failure of individual health care cost management programs.

The goal of health care cost management initiatives is to restrain costs without reducing the quality of care (Ginzberg, 1987). All health care cost management strategies, therefore, are attempts to correct for market failure. Health care costs would continue to rise for a number of reasons—including the changing demographics of the work force, the labor-intensive nature of health care services, and the introduction of new technology—even if the market for health care services functioned perfectly (Schwartz, 1987). The market for health care services fails because the mix of services provided is not necessarily the mix that fully informed

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<th>Survey</th>
<th>Preferred provider organization</th>
<th>Health maintenance organization</th>
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<td>The Wyatt Company, 1988</td>
<td>26.1%</td>
<td>64.5%</td>
<td>76.7%</td>
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<td>A. Foster Higgins, 1987</td>
<td>21.1</td>
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*Percentages represent an estimate of all of the employees participating in employer-sponsored health plans who are affected by specific cost containment measures. Percentages were computed by combining the Wyatt and Foster Higgins results with Employee Benefit Research Institute tabulations of the May 1983 Current Population Survey.

The survey included 2,271 employers; 15 percent of the firms had from 1 to 250 employees, 11 percent had from 251 to 500, 16 percent had from 501 to 1,000, and 37 percent had more than 1,001.

The survey included 2,016 employers; 39 percent of the firms had between 1 and 99 employees, 13 percent had from 500 to 999, 20 percent had from 1,000 to 2,499, 10 percent had from 2,500 to 4,999, 7 percent had from 5,000 to 9,999, 5 percent had from 10,000 to 19,999, 3 percent had from 20,000 to 39,999, and 4 percent had more than 40,000.
consumers would wish to purchase and the services are not provided at minimum cost.

This Issue Brief explores the sources of market failure and cost inflation in health care services, reviews the efforts of private employers to manage health care costs, describes efforts to define and measure the quality of health care, and examines the relationship between cost management initiatives and quality.

Sources of Health Care Cost Inflation

Economist Kenneth Arrow, who would later win the Nobel Prize for economics, received a grant from the Ford Foundation in the early 1960s to analyze the health care delivery system. His analysis suggested that many of the features of the system at that time had been developed in response to uncertainty. He wrote, “... the special economic problems of medical care can be explained as adaptations to the existence of uncertainty in the incidence of disease and in the efficacy of treatment” (Arrow, 1963). Uncertainty in the incidence of disease led to the development of health insurance, while uncertainty in the efficacy of treatment determined the characteristics of private insurance plans and public health policy. Uncertainty in treatment effectiveness means that, given a set of symptoms, it is difficult to make a correct diagnosis, and that, once a correct diagnosis is made, a given treatment may produce different outcomes for different people.

As a result of uncertainty in the efficacy of treatment, insurers are unable to determine in advance the actual cost of treating a given condition. Health insurance benefits are thus based on expenditures for health care services rather than on the actual loss due to a particular ailment. As a result, health insurance lowers the relative price of medical services, increasing patient demand for health care services; this is known as “moral hazard.” The increased demand for health care services due to moral hazard is one source of health care cost inflation.

Tax Policy

The expansion of health insurance has contributed significantly to health care cost inflation. An important issue is the extent to which federal tax policy has spurred the expansion of private health insurance and encouraged employers to accommodate health care cost inflation. Noting that the “nature, amount, and form” of health insurance have been cited as major causes of health care cost inflation, Mark Pauly states, “Tax policy, as a primary influence on that insurance, and as a primary policy instrument for changing the quantity and form . . . assumes enormous importance” (Pauly, 1986).

Tax policy allows employees to receive a portion of their total compensation on a pretax basis. Employer contributions to employee health insurance are exempt from personal income and payroll taxes. Moreover, from 1965 to 1982 employees were allowed to deduct one-half of their contribution to health insurance premiums, up to a maximum of $150. The Tax Equity and Fiscal Responsibility Act of 1982 eliminated the separate deduction for health insurance premiums for individuals.

Although most researchers agree that tax policy has affected the “nature, amount, and form” of health insurance provided by employers, it is not clear how much of the increase in private health insurance coverage and benefits can be attributed to tax policy. Most employers that offer health insurance would probably continue to do so in the absence of a tax preference. Group insurance is less expensive than individual coverage because it reduces the problem of adverse selection. (Adverse selection occurs when the people most likely to purchase insurance are those who are also most likely to use health care services.) Employers are thus able to provide more insurance per dollar than the employee could purchase individually. Employer-sponsored health insurance may decrease employee turnover and increase productivity. Removal of the tax preference would make health insurance more expensive for employees and might reduce the number of workers who participate in employer-sponsored plans.

Inflation pushes individuals and organizations facing progressive tax schedules into higher tax brackets. The value of the employer-sponsored health plan tax preference to employees thus increases as their effective marginal tax rate increases. As a result, the exemption has led to increased worker participation in employer-sponsored health insurance plans, an expansion of
benefits, and an accommodation of health care cost inflation. Employer contributions to health insurance as a percentage of total compensation increased from approximately 1 percent in 1960 to more than 5 percent in 1987.³

Deborah J. Chollet calculated that tax policy accounted for 13 percent of the real growth in employer contributions to health insurance between 1970 and 1982.⁴ Other researchers (Chernick, Holmer, and Weinberg, 1987) used a microsimulation model to investigate the effect of the tax preference on the demand for health insurance and medical services. Employing empirical estimates of the sensitivity of the demand for health insurance to changes in premiums generated in other studies,⁵ they estimated that the reduction in the demand for health insurance that would result from a repeal of the tax preference would range from 6 percent to 57 percent, with a mid-range estimate of about 27 percent. They estimated repeal of the tax preference would result in a reduction in the demand for medical services of between 2 percent and 13 percent.

The Market for Health Care Services

The concept of uncertainty in the efficacy of treatment determined the provisions of the provider reimbursement policies developed by private and (with the introduction of Medicare) public insurers. These policies were designed to enhance the physician-patient relationship. They reimburse physicians under a fee-for-service system to avoid burdening either the physicians or their patients with the risks that might arise from limiting the potential range of diagnostic and therapeutic services available for treatment. The policies regard hospitals as quasi-public institutions and reimburse them on a cost-plus basis to enable them to maintain high-quality services. Reimbursement under fee-for-service for physicians or cost-plus systems for hospitals gives providers little incentive to limit the number or volume of services they provide. Increased health insurance coverage creates incentives both for providers to prescribe, and for consumers to seek, more health care. All of these features of the health care delivery system have been cited as contributing to increasing costs.

The number of active physicians grew from 153 per 100,000 civilians in 1970 to 214 physicians per 100,000 civilians in 1985, an increase of 40 percent.

The increasing demand for health care services has led to a concurrent increase in the demand for new medical technology. Medical researchers, with financial assistance from the government and other sources, have responded impressively. The number of diagnostic tools a physician can use to diagnose a given set of symptoms and the number of potential therapeutic procedures available for a given diagnosis have increased dramatically in the last 25 years.

The supply of physicians has also grown rapidly. The number of active physicians grew from 153 per 100,000 civilians in 1970 to 214 physicians per 100,000 civilians in 1985, an increase of 40 percent, and it is projected to grow by another 20 percent by the year 2000 (Kletke, Marder, and Silberger, 1987). Although the simple economics of supply and demand imply that increasing the supply of physicians should lower physician income, there was no significant change in their earnings, after adjusting for inflation, during the period from 1975 to 1985 (Gonzalez, 1986). This implies that the increasing supply of physicians must generate its own demand, and that the oversupply is a source of health care cost inflation.

This assumption ignores the demand side of the market. The demand for physician services is related to the

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⁵ These estimates vary considerably from study to study.
introduction of new technology and supply of new procedures. New technology lengthens the list of procedures a physician can perform for a given condition and increases the number of conditions he or she can treat, raising the demand for treatment. Concurrently, as their numbers increase, physicians tend to specialize, performing fewer types of procedures.6 Projections of the supply and demand for physician services to the year 2000 indicate that the supply will roughly equal the demand unless substantial rationing occurs (Schwartz, Sloan, and Mendelson, 1988).

The sensitivity of the demand for health care services to changes in price is lessened by the spread of health insurance, which lowers the effective price of health care services. Total payments by private health insurance overtook total direct payments by consumers in the late 1970s and are an increasingly large component of national health expenditures (chart 2). Physicians have long considered price competition unethical and have competed in quality or, more accurately, in “quality signals.” Since patients lack the information necessary to evaluate the technical quality of care, they look for signals—such as location, office amenities, and the physician’s hospital affiliation—that they hope relate to technical quality. Hospitals compete with each other for physicians and patients by offering the capability to perform more procedures and to deliver more amenities. The related additional cost, including that of expensive new technology required to perform new procedures, is reflected in higher charges for all other procedures.

The result of this competition is that new technology is introduced with little or no evaluation of its benefit in relation to its cost. There is no incentive to assess the costs and benefits of any procedure. Providers adopt practices based on their personal preferences. Patients

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lack the information necessary to evaluate the quality of care they receive before, during, or after an episode of illness. Medical researchers have little or no incentive to assess the relative benefits of the procedures they develop; to be adopted, new procedures do not need to be more effective or less expensive than existing procedures.

Medical research has produced a rapid expansion of treatment options without concurrent research on their relative efficacy. This paucity of information on medical outcomes has prevented the formation of a medical consensus on the proper treatment of given sets of symptoms and has resulted in the practice of medicine as an art rather than as a science. The large variation in practice patterns that occurs among physicians practicing in the same geographic area is well documented. Malpractice proceedings, which are intended to punish incompetent providers, instead force lay juries to decide the appropriate medical treatment for a given condition. The threat of malpractice suits may lead physicians to perform more procedures than they consider necessary or cost effective. The combined costs of malpractice insurance premiums, settlements, and defensive medicine have been estimated to be as high as $14 billion per year, leading some physicians to stop performing some high-risk procedures (Reynolds, Rizzo, and Gonzalez, 1987).

The sources of health care cost inflation are related to the allocation of risk. Tax policy has not only encouraged the expansion of health insurance but has aided the accommodation of health care cost inflation as employees have been pushed by general price inflation into higher marginal tax brackets. The spread of health insurance and insurers’ assumption of the risks associated with uncertainty in treatment outcomes have increased the demand for health care services and stimulated the development of new procedures. Hospitals and physicians in competitive markets are quick to adopt new technology, raising their costs. Providers, given a larger number of potential procedures that can be performed for a given condition, provide more intensive and specialized care. The higher cost of health care services in turn increases consumer demand for health insurance. Constraints on the demand for health insurance that might result from its increasing cost are reduced by tax policy. Cost management strategies, to be successful, must intervene in some portion of this spiral.

Cost Management Strategies

Although medical research has produced a number of miracles, uncertainty in the efficacy of treatment remains an important characteristic of the health care delivery system. Many of the cost management initiatives undertaken by private and public insurers are designed to shift the risks associated with that uncertainty from the insurer to either the patient or the provider. Other strategies aim to reduce variation in treatment.

Public and private insurers have adopted three broad strategies to slow the growth of health care costs: cost sharing, utilization review, and packaging of provider services.

Cost Sharing

Cost sharing provides patients an incentive to weigh the costs and benefits of a procedure, reduces the incentives for moral hazard, and forces the patient to assume some of the risk associated with efficacy of treatment. There are, however, clear limits to patients’ ability to evaluate alternative treatments.

Cost sharing can be effective in managing health care costs. For example, the Rand Health Insurance Experiment, which was conducted by the Rand Corporation for the U.S. Department of Health and Human Services between 1974 and 1977, found that individuals in plans with a 25 percent coinsurance rate had 15 percent lower per capita costs than individuals in plans with a zero coinsurance rate (Manning et al., 1987). The 15 percent figure may understate the response of individuals to increased coinsurance rates since the experiment compensated individuals who were in plans with greater cost sharing to induce them to accept these plans.

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Cost sharing is most effective in reducing the use of outpatient care. Some of the care forgone, however, may include preventive care, which might result in higher inpatient costs. The study found that low-income individuals with lower coinsurance rates experienced specific health gains for a number of prevalent chronic problems that are relatively inexpensive to diagnose and treat.

Some of the proponents of cost sharing as a cost management tool have argued that it provides the patient with an incentive to shop for the most cost-effective provider. Determining the cost effectiveness of any provider requires a good deal of information that, although available to insurers, may be prohibitively expensive for consumers to obtain.

Utilization Review

Utilization review (UR) is a process of systematically reviewing care to determine its necessity and appropriateness. There are, in general, three types of UR: preadmission certification, in which the appropriateness of an inpatient stay is evaluated prospectively; concurrent review, which examines care as it is provided; and retrospective review, which reviews care already given. UR represents the introduction of an informed buyer into the health care services transaction.

A recent survey of employers rated utilization review as second only to cost sharing as an effective cost management measure.

Payment to hospitals under Medicare’s prospective payment system (PPS) is an example of this redirection. PPS completed the transition of Medicare’s hospital reimbursement policy from a per diem, cost-plus basis to a prospectively determined per-case basis. Under PPS, each admission is classified in one of 472 diagnosis-related groups (DRGs); the hospital receives a set amount for each admission within a DRG. While PPS is simply a price schedule for hospitals, it has shifted the

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risks associated with treatment uncertainty to the hospitals. The result has been fewer admissions and shorter average lengths of stay.

Like utilization review, PPS has shifted care out of the hospital. Consequently, outpatient charges are the fastest growing component of Medicare spending. Medicare’s expenditures for hospitals were 1.9 percent higher in 1987 than in 1986, whereas its expenditures for physician services rose by 18.9 percent during the same period. Attempts to constrain Medicare’s outpatient costs have been limited to price restrictions, a strategy that has led to changes in physician billing, increases in utilization, and cost shifting to other payers.

There is some question concerning whether HMO cost reductions are the result of selection bias.

Health maintenance organizations (HMOs) are a type of provider service package. An HMO agrees to provide a prescribed set of benefits as needed by enrollees for a capitated payment—a fixed amount per enrollee. The HMO thus bears the risks associated with the assessment of need and delivery of care.

HMOs may be the most thoroughly studied of the cost management strategies. Total costs for enrollees have been found to range from between 10 percent and 40 percent less (depending on the HMO) than those for traditional health insurance programs. These cost differences are the result of lower rates of service, especially lower hospital admission rates (Luft, 1981).

HMOs generally fall into two categories: group (or staff) models and independent practice arrangements (IPAs, or network models). In group models, the physician is either an employee of, or receives a majority of his or her patients from, the HMO. In an IPA model, the HMO contracts with physicians, who also maintain a fee-for-service practice. Physicians in IPAs are typically reimbursed on a blended fee-for-service/capitation basis.

Although IPAs are the fastest growing HMO model, the research literature has generally focused on the older, more established HMOs, which are more likely to be group or staff models. The few available studies of IPAs suggest that these HMOs have more admissions per thousand members and thus are less effective in constraining costs (Langwell and Nelson, 1986).

There is some question concerning whether HMO cost reductions are the result of selection bias. Some employers offering an HMO option in addition to an indemnity plan have claimed that employees who represent lower risk opt for HMOs while patients with higher health care expenses remain in the indemnity plans. This has resulted in higher overall costs, because until 1989 federal law required employers to contribute at least as much on behalf of an employee participating in an HMO as they contributed for an employee in an indemnity plan. This has resulted in higher overall costs. Buchanan and Cretin found that families selecting HMOs were younger, had lower income, and had lower claimed health care expenses prior to enrollment than families selecting a fee-for-service plan (Buchanan and Cretin, 1986).

Researchers studying the impact of various benefit options on premiums found that a group health plan offering an HMO option had significantly higher premiums in its fee-for-service plan. They concluded that “there is growing evidence that HMOs experience favorable selection when offered as an alternative to conventional coverage” (Jensen and Morrisey, 1988).

The Rand Health Insurance Experiment randomly assigned individuals to an HMO and compared their utilization rates with those of participants in indemnity plans and individuals who chose an HMO. The individuals who were assigned to the HMO had lower rates than those in the indemnity plans, although not as low

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9 The Health Maintenance Organization Act Amendments of 1988 (P.L. 100–517) amended the "equal contribution" requirement to require only that the employer contribution for HMO coverage not "financially discriminate" against employees electing the HMO option.
as individuals who freely chose the HMO. There were no differences in health outcomes between individuals enrolled in HMOs and those in indemnity plans with no cost sharing, except for low-income individuals who entered the experiment in poor health. The researchers concluded that the cost differences resulted mainly from cost-effective practice styles rather than from differences in enrollee groups. Other researchers have found little or no evidence of selection bias. Some have found that, to the extent adverse selection exists, it is the HMO that attracts high-risk participants.¹⁰

Although most studies have been unable to find any differences in health outcomes between HMOs and indemnity plans, both the participants in the Rand experiment and Medicaid recipients in Wisconsin who were assigned to HMOs (as opposed to choosing to enroll) were dissatisfied with the care they received (Rowland and Lyons, 1987). This suggests that there are differences between individuals who prefer HMOs and those who prefer traditional indemnity plans, but it is unclear how these differences affect utilization.

Finally, two major studies have found that the rate of cost inflation is the same for HMOs as it is for traditional insurance plans (Luft, 1980, and Newhouse et al., 1985). One study argues that this result indicates that HMOs adopt new technology at the same rate as the fee-for-service plans (Newhouse et al., 1985). A possible explanation is that the information necessary to evaluate the cost effectiveness of new procedures is simply not available, even to providers with a clear financial incentive to adopt cost-reducing techniques. Another possibility is that maintaining HMOs’ market share in competition with fee-for-service care requires the adoption of similar practices.

Preferred Provider Organizations

Although preferred provider organizations (PPOs) differ greatly in their structures, in theory they combine the three broad cost management strategies: a limited provider panel, negotiated fee schedules, and UR. In addition, some of the newer PPOs pay a physician to serve on a capitated basis as a gatekeeper who controls utilization of services within the PPO.

The limited provider panel is the key element of a PPO. In theory, providers are selected for their cost-effective style of practice. These providers then generally agree to discount their fees for services within the PPO. It is fairly well documented, however, that price reductions do not necessarily lead to reduced expenditures. Therefore, UR review becomes very important.

The major difference among PPOs is their sponsorship. A survey done in 1985 and repeated in 1986 found that PPOs sponsored by insurers or investors were more likely than those sponsored by providers to have stringent UR programs and to choose their provider panels so as to lower costs rather than to assure coverage of market areas (de Lissovoy et al., 1986). In short, PPOs are a marketing device for the providers rather than an alternative delivery system. The American Medical Care and Review Association directory of PPOs lists 268 provider-sponsored PPOs, representing approximately 41 percent of all PPOs. Investor- and insurer-sponsored PPOs are more likely to use cost studies to select providers and to use physician profiles to monitor utilization and costs.

The health care delivery system continues to evolve as health care costs rise. New health care plans have been developed that combine features of PPOs and HMOs. CIGNA, United Health Care, Inc., and Prudential Insurance Company of America have created plans that are similar to HMOs but allow enrollees to receive covered care from providers not on the panel. This arrangement provides employees a choice without increasing the number of plans with which the employer must contract. Several large employers, such as Allied-Signal and Southwestern Bell, have contracted with insurers to create nationwide provider networks for their employee health care plans. The success of these plans will depend on their ability to limit utilization “out-of-network.”

PPOs are so new that there is very little literature on their effectiveness at controlling costs. However, one study found that PPOs are used most intensively for

low-risk services and by patients who need relatively few medical services (Wouters and Hester, 1988). Lower deductibles and copayments are the incentives used to persuade patients to choose PPO providers. Intensive users, however, are likely to meet even a higher deductible quickly and to have built a relationship with an “out-of network” provider, making them less likely to use PPO providers. Thus adverse selection may be a problem.

Cost management strategies can be viewed as attempts to limit moral hazard and to force patients and providers to assess the expected cost and benefits of each treatment decision. The benefits of care and the quality of care are clearly related concepts. Viewed in this way it becomes clear that health care cost inflation and health care quality are inseparable issues. To be effective, health care cost management strategies must affect the quality of health care.

Health Care Quality

Defining and measuring health care quality are controversial and costly endeavors. Quality of care is a multidimensional concept: it can be viewed narrowly (as clinical effectiveness) or broadly (as all the aspects of medical care that patients value). The difficulty with any multidimensional concept is in weighing the disparate components. Even if individuals agree on the features of care that determine its quality, they may disagree about the relative importance of each feature. While any definition of quality should include the efficacy of treatment, its importance in relation to other components of quality is subjective.

Measuring health care quality is at least as difficult as defining it. Donabedian classified attempts to measure quality of care in terms of evaluating structure, process, and outcome (Donabedian, 1988). In his analysis, structure refers to such characteristics of care as the qualifications of the caregivers and the setting in which care occurs—including facilities and equipment and organizational structure (for example, medical staff organization). Process is concerned with the activities of caregivers, the decisions made at each step in an episode of illness, and the appropriateness of the care provided. Outcome measures the effects of care on the patient’s health status and his or her satisfaction with the treatment.

These measures of quality are interrelated. As Donabedian and others11 have pointed out, measures of structure and process are only important as indicators of quality if they are related to outcomes, and measures of outcomes are important only if they can be related to the structure and process of care and cannot be attributed to environmental or other factors.

Structural measures of quality have historically been employed in the various accreditation processes used by both private agencies, such as the Joint Commission on the Accreditation of Health Care Organizations (JCAHCO), and public agencies, such as the Health Care Financing Administration (HCFA). As an example, in reviewing a hospital JCAHCO looks at a long list of structural measures, such as the physical plant of a hospital and its medical staff organization. However, the relationship between some of these factors and health outcomes seems tenuous at best.12

Process is an important component of quality assessment because it focuses directly on uncertainty in the efficacy of treatment. Given this uncertainty, the logic of medical decision making is an important determinant of quality and cost effectiveness. Process measures are used by peer review organizations in reviewing the quality of care received by Medicare recipients and by organizations that perform utilization review. Generally, examining the process of care involves assembling a panel of physicians who review medical records to determine the appropriateness of the care received. A number of studies using this method have indicated that a significant proportion of the treatment provided to patients is inappropriate.13

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As with structural measures of the quality of care, the relationship between process and outcomes is not well established. The information needed to determine the effect of process on outcomes is not yet available. Researchers examining the quality of medical evidence argue that “…for at least some important practices, the existing evidence is of such poor quality that it is virtually impossible to determine even what effect the practice has on patients, much less whether that effect is preferable to the outcomes which would have occurred with other options” (Eddy and Billings, 1988).

One list of outcome measures has been described as “the five D’s: death, disease, disability, discomfort, and dissatisfaction” (Lohr, 1988). Outcome measures have intuitive appeal in that they can be relatively inexpensive to collect and appear easy to interpret. For example, HCFA has begun to release hospital mortality rates in an effort to provide consumers with information on hospital quality. Hospitals indignantly, and correctly, have pointed out that the problem with simple outcome measures is that high-quality care may not prevent a poor outcome, and that providers treating sicker patients are more likely to have bad outcomes regardless of the quality of care they provide. Simple outcome measures must be adjusted to account for factors other than the quality of care that might affect outcomes, including the types of cases a provider treats (case mix), the severity of illness, and patient characteristics.

A number of systems have been developed to measure case mix and severity. DRGs, which are used by Medicare to reimburse hospitals, classify inpatient admissions by diagnosis and can be used to determine a hospital’s case mix. Some systems, such as Acute Physiology and Chronic Health Evaluation (APACHE) and the Medical Illness Severity Grouping System (MEDISGRPS), use physiological indicators to measure a patient’s risk of dying to determine the severity of the patient’s condition. These and similar systems have been used by providers and insurers to evaluate the quality and cost effectiveness of care. For example, a hospital can assign a severity measure to each patient within a DRG and evaluate each physician’s outcomes, using mortality or morbidity rates (such as length of hospital stay). Within each DRG the physician with the most severely ill patients should have the highest rates of bad outcomes and the highest costs. For this kind of quality evaluation to be accurate, severity and case mix measures must capture the effects that factors other than quality have on outcomes.

Patient satisfaction is an outcome measure that is relatively easy to collect. A number of studies have attempted to assess patient satisfaction and its relationship to the structure and process of care. In reviewing this literature, Cleary and McNeil note that “the most consistent finding in the satisfaction literature is that characteristics of the provider or the organization that make care more ‘personal’ are associated with higher levels of satisfaction” (Cleary and McNeil, 1988).

Satisfaction, of course, is subjective. Attributes of care that some patients find satisfactory may be found unacceptable by others. The HMO industry regularly reports survey results indicating that its enrollees are very satisfied with the care they receive. As mentioned earlier, however, at least two studies have found high levels of dissatisfaction among HMO enrollees who were assigned, but did not choose, that system of care (Manning et al., 1987, and Rowland and Lyons, 1987).

The foregoing discussion indicates that there is no single measure that adequately captures all the dimensions of quality of care. The definition of quality is at least in part subjective, but even the measurement of the characteristics of care over which individuals might disagree is incomplete. Moreover, the information necessary to determine whether a limited set of easily observable characteristics, such as mortality rates, nurse-to-bed ratio, or board certification, could serve as indicators of quality is not yet available. Therefore, it is unclear exactly what our health care dollar is purchasing.

**Policy Implications**

There are underlying causes for health care cost inflation other than market failure (Schwartz, 1987). A growing and aging population and advances in health care technology increase the demand for health care services. The increased demand drives up costs as the health care industry competes with other sectors for resources. As a matter of public policy, these increasing costs would not be troublesome if more health care
were actually being provided. One definition of economic growth is "more people purchasing more products."

The problem is that the health care services market fails to allocate resources efficiently. The risks from the uncertainty in the efficacy of treatment have largely not been borne by either providers or patients. There is no market mechanism that evaluates the benefits of new or existing treatments against their costs. Instead, competition among providers encourages them to adopt new practices in order to offer a wider range of potential services. In the absence of information that would justify cost-effective practice, cost-conscious providers are not rewarded by the health care market. In most other markets price and quality rise together. Patients who lack any other information on quality may assume that the same relationship holds for medical services and be reluctant to move to less expensive providers.

The market may be unable to produce the amount of quality assessment necessary to ensure the provision of cost-effective care.

The federal government has funded research on quality assessment, but a recent Office of Technology Assessment report concluded that “serious gaps remain, and efforts do not flow from a systematic, long-term agenda” (U.S. Congress, 1988). That agenda should include identifying and collecting the data necessary to assess the quality of care; establishing the relationship among structural, process, and outcome measures of quality; identifying readily accessible indicators for quality; and disseminating information to providers and patients.

◆ Conclusion

The health care delivery system is rapidly evolving as a result of rising health care costs, and this evolution is clearly defined by the relationship between health care financing and health care quality. Health care cost inflation arises in part because purchasers are unable to determine exactly what they are purchasing. Providers have been reimbursed for the inputs they supplied to the production of health care services rather than for the health care they actually produce.
Defining the quality of health care essentially defines what is being purchased, a prerequisite for an efficient market for health care services. If health care cost inflation is brought under control, it will be because the buyers of health care have gathered the information necessary to make informed purchasing decisions.

◆ References


Rowland, Diane, and Barbara Lyons. “Mandatory HMO Care for Milwaukee’s Poor.” Health Affairs 1 (Spring 1987): 87–100.


