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Managed Care and Social Welfare

What Has Managed Care Really Done to the U.S. Health Care System?

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For most of the last century, the U.S. health care system was financed primarily through traditional indemnity health insurance plans that paid doctors, hospitals, and other health care providers on a fee-for-service basis. By the 1960s, most Americans received insurance of this type through either their employers or government programs, such as Medicare and Medicaid (HIAA 1991). In the midst of economic prosperity that minimized constraints on the revenues they could collect, and faced with the then comparatively low cost of health care, health insurers and the government provided ample funding for the widespread provision of ever more advanced health care. In the process, this subsidized and encouraged the training of new physicians, the building of new infrastructure, and the development of increasingly advanced, and almost always more expensive, technologies. By all accounts, these developments contributed significantly to the capabilities of medicine to cure disease and improve the health and functioning of patients. By the 1970s and 1980s, though, rapidly increasing costs gave rise to a number of cost-containment efforts. Perhaps the most prominent of these efforts is the growth of managed care, encompassing a range of changes in the practices of health insurers that have eroded the pillars of the traditional fee-for-service health care financing system.

The growth of managed care has raised important questions about its impact on the well-being of patients. An increasing number of opponents argue that expansion of managed care has put cost cutting

front and center, displacing concerns about quality and health, and will inevitably harm patients and reduce the well-being of the U.S. population. But this view may not be completely correct. Advocates of managed care argue that fee-for-service medicine fostered waste and inefficiency, and that by developing better methods of allocating resources, society can obtain the same value from its health care system for less money. Moreover, maintaining the traditional health care financing system was increasingly costly, and savings generated by managed care can also contribute value to society.

Much of the public debate about the impact of managed care has been conducted around opinion and anecdote, without careful analysis of the large body of evidence available on the impact of managed care on health care, outcomes, and costs. This chapter aims to contribute to these debates by presenting and synthesizing key evidence, seeking to evaluate what is known about the impact of managed care on the well-being of the U.S. population. The first sections briefly discuss the origins and definition of managed care and present a framework for analyzing the impact of managed care on the well-being of society. The next section reviews evidence on treatment patterns, outcomes, satisfaction, and expenditures in managed care organizations. Following that is a discussion of the impact of managed care on non-managed care patients and on the structure and functioning of the health care system in general. The next section presents some supplementary evidence on cost savings from growth in managed care. The final sections synthesize the evidence presented, discuss welfare implications, and consider the future of managed care.

WHAT IS MANAGED CARE AND WHERE DID IT COME FROM?

The health care system that grew up in the United States after World War II was a lavishly funded affair. With a strong economy, it was relatively easy for employers to include generous indemnity health insurance in employee compensation packages. These insurance plans typically provided broad coverage of health care spending with no restrictions on the physicians or hospitals used by the beneficiaries,

provided for little oversight, if any, of the treatment decisions made by physicians, and placed few restraints on the amounts that could be charged. Free spending in the private sector was augmented by extensive public sector spending in the form of the Medicare and Medicaid programs, providing fee-for-service coverage for the elderly and poor, as well as programs like the Hill-Burton program for the development of hospital infrastructure, and the National Institutes of Health for medical research.

Although financial incentives are not the only force that influences the health care delivery system, they can play an important role in shaping the system's institutions and behavior. It is perhaps not surprising that the health care system that grew up in this environment reflected, in at least some ways, the financial forces that nurtured it. With few financial constraints, it was easy for providers to supply their patients with many advanced services. Under many traditional indemnity plans, neither the patient nor the provider bore any of the cost of treatment, so one would expect providers and patients to demand all services that would have had even some probability of a benefit for the patient, even those that were very costly to the insurer and to society. Moreover, the inclination to do everything possible for patients was reinforced by the fact that providers paid on a fee-for-service basis received additional compensation for furnishing more—and more expensive—services. Because increasing numbers of patients had insurance, these incentives helped to ensure the availability of advanced medicine to broad segments of the population.

Beyond influencing the treatments provided for individual patients in a physician's office or hospital, the availability of generous compensation for providing extensive and expensive care with the latest techniques also influenced the infrastructure of medicine. It attracted new medical students who ultimately contributed to the increasing number of physicians, particularly specialists; it fostered the development of new hospitals; and it encouraged the adoption of new techniques and equipment, in turn creating a ready market for the purchase of new innovations that helped fuel a large and active research establishment.

All of this contributed to the formation of a health care delivery system that enjoyed wide public support as a world leader, particularly with respect to its advancement and ability to make high-tech care available to broad segments of the population. But, maintaining this

system turned out to be a costly endeavor. The United States spent then, and continues to spend now, markedly more than any other country in the world. In 1997, the United States spent 13.9 percent of its gross domestic product on health care, while the next highest figure was from Germany, at 10.7 percent. Other industrialized countries like France (9.6 percent), Canada (9.2 percent) and the United Kingdom (6.8 percent) were even lower (OECD 1999).

As the costs of sustaining the system increased over time, cracks began to appear in the foundation of public support that backed the system. Spending large amounts of money to obtain highly valued items is easily justifiable, but, first in the 1960s and more evidently in the 1970s and 1980s, some began to question whether the value received from the health care system was commensurate with the level of spending. Some of the unease was generated by the fear that additional health care spending was not generating significant improvements in health. Despite leading the world in health care spending, life expectancy, infant mortality, and other population-level indicators of health remained worse in the United States than in other developed countries. Moreover, some evidence suggested that excessive health care, potentially detrimental to health, was being provided. One study found that at least one-third of carotid endarterectomies, surgery to improve blood flow to the brain, were unnecessary and inappropriate, as were at least 17 percent of angiograms, invasive X rays of the coronary arteries (Brook 1989). Both of these procedures carried nontrivial risks to patients, and the knowledge that these and other potentially risky procedures were being overprovided gave further reason for reexamination of the incentives in the system. If it is health that ultimately produces the value society derives from the health care system (a debatable proposition to which I return below), then spending that does not produce health is inefficient and should be redirected to purchase other goods or services that generate value for society.

All of this led to a variety of efforts to mitigate the incentives generated by the traditional insurance system that appeared to be encouraging high spending on things of questionable value. These efforts included things like the widespread introduction of co-payments and deductibles, the imposition of second opinion requirements for elective procedures, and Medicare's Prospective Payment System. Most prominent among them, though, is the growth of managed care, which began

in earnest in the early 1970s and reached full swing during the 1980s and 1990s.

The term *managed care* refers collectively to a set of activities that health plans and others can undertake to mitigate the propensity for the provision of more and more expensive services fostered by unmonitored fee-for-service medicine. There are three main managed care strategies. The first is centralization of control over utilization decisions. Fee-for-service medicine was characterized by virtually complete autonomy on the part of physicians and other providers, in consultation with the patient, with respect to care choices. Under managed care, health plans can take on more significant roles in overseeing care choices. For example, patients and their physicians may be forced to obtain preapproval from a utilization review organization for diagnostic tests or surgical procedures if the plan is to pay for the services. Plans can then deny approval for services that they deem to be inappropriate uses of resources. Many plans regulate the use of specialists by forcing patients to sign up with a particular primary care physician or group of physicians and then obtain a referral from this “gatekeeper” physician or group when specialized services are required. Plans can also engage in activities like promulgating guidelines for care or developing detailed formularies of approved pharmaceutical products for which they will pay, effectively limiting prescribing to the approved list. Less direct forms of control are also possible. For example, many plans periodically review the practice patterns of physicians to identify those whose use of services appears excessive, and they may provide incentives for meeting the targets.

Second, health plans can impose indirect controls on utilization by using financial arrangements that put providers at risk for the financial implications of the patient care decisions they make. For example, plans can use capitation contracts in which physician groups (or even individual physicians) are paid a fixed amount per patient per month to care for the patients who have signed up with them. This effectively reverses the fee-for-service incentive to provide more care to each patient. In other cases, plans may withhold a portion of the payments due to physicians and reallocate these funds at the end of the year based on the performance of physicians or groups in meeting utilization, quality, or other targets imposed by the plans.

Finally, health plans may define networks of physicians and health care providers with whom they will work and provide incentives for patients to see only those providers chosen. Defining a panel offers plans the advantage of selecting only those providers with whom they are interested in working, as well as the potential to obtain contracting advantages and discounts from physicians who would like to be included in the panel. Some plans define relatively broad networks of affiliated physicians and providers, while other plans focus their efforts on building relatively narrow panels and carefully managing them to include only those providers whose patterns of practice are most consistent with their goals. Plans that have formed networks can impose restrictions on the ability of patients to choose providers outside of the network. Some plans will not pay for care delivered by physicians or hospitals not included in the approved panel. Other plans provide some financial incentives for patients to see providers in the panel, but they will pay at least part of the bill for out-of-network care.

Beyond the three main categories of plan activities, there is a wide range of other things that plans can do to influence practice patterns. Many plans engage in efforts to change physician opinions about the best ways to care for their patients. They may, for example, provide information and work with physicians to define standards for care. Plans may also influence practice patterns simply by collecting data on the performance of services that the plan or other observers like the National Center for Quality Assurance believe to be indicators of quality.

Today, most health plans use more than one of these techniques, and plans vary widely in the combinations of approaches they use and in the weight they put on each approach. To some extent, different combinations of approaches define the stereotypical organizational forms that are commonly observed in the marketplace. Staff and group model HMOs, like Kaiser Permanente and the Group Health Cooperative of Puget Sound, tend to tightly define a network of providers whose financial incentives are closely aligned with the incentives of the plan and restrict patients to choose only providers in the network. Because the panels are carefully defined and financial incentives are already integrated, there is relatively little need to impose strong central controls on utilization or use financial incentives to limit costs.

Independent practice association (IPA) model HMOs typically have more loosely defined networks of physicians and restrict patients to remain within the network. The looseness of the network and the lack of integration with the plan requires stronger efforts to contain utilization. IPA-model HMOs vary in the emphasis they place on financial incentives as opposed to direct controls, but the prototypical IPA-model HMO relies heavily on some combination of them.

Preferred-provider organizations (PPOs) are characterized by relatively loose panels, some incentives to choose providers in the network (but weaker incentives than those used by HMOs), and limited efforts to control utilization. As a result, PPOs have been regarded as potentially less effective at controlling costs than other organizations. Many formerly unmanaged indemnity plans have also adopted managed care techniques over the past years, typically consisting of efforts to impose some (frequently limited) central control on utilization patterns.

Taken as a whole, the growth of managed care represents a massive shift in the financial incentives at work in the U.S. health care system. Between 1981 and 1998, HMO enrollment grew from 10 million to 105.3 million, with about 30 percent of this growth coming after 1995 (Hoechst Marion Roussel 1999; Interstudy 1994). PPO growth was also substantial, and by some accounts the vast majority of the U.S. non-elderly population was enrolled in some form of managed care plan by the late 1990s.

A FRAMEWORK FOR EVALUATING THE IMPACT OF MANAGED CARE

Growth in managed care has prompted questions about its impact on the health care system and on the well-being of patients, which could be evaluated from a number of different perspectives. Here, I take society's perspective and attempt to discuss the issues important in determining whether society's total utility, or value, has been increased or decreased by managed care.

Individuals can be characterized as getting utility from three things. First, people get utility from health. Second, people can get utility from the amenities or other attributes of the health care system

that do not necessarily improve health but reduce their hassles or increase their enjoyment. People value short waiting times in doctors offices and friendly staff, even if these things do not directly make them healthier. The American public has also expressed a desire for high-tech, advanced care even though this has not always been shown to produce better health than lower-tech, less aggressive medicine. Some people may simply value the knowledge that they are receiving the most up-to-date treatments from the most highly trained specialists. For others, receipt of high tech therapies may foster the perception that health is being maximally improved, even in cases where this is not actually the case. Finally, individuals get utility from the amount of money they have left after their spending on health care, including health insurance, out-of-pocket spending, and spending for any other health care goods and services. I can thus write a representative individual's utility function as

$$\text{Eq. 1} \quad u = u(h, a, y - y_h),$$

where h denotes health, a denotes amenities, y denotes income, and y_h denotes spending on health care. Obtaining the maximum amount of utility requires trading off the purchase of more and better health care, which could generate more health and better amenities, with consumption of other things.

Society consists of many individuals, so from society's perspective one can write

$$\text{Eq. 2} \quad U = U(H, A, Y - Y_h).$$

For simplicity, society's total utility could be thought of as a summation of the utility of each individual, although in reality it is probably more complicated than that. Thinking about overall social utility, though, produces the same problem for society as for an individual. In order to obtain the maximum amount of collective utility, we must trade off the purchase of more health care with nicer amenities against the use of our collective income for other pursuits.

The social perspective can differ in important ways from the individual perspective. Most notably, focusing on social utility maximization allows for trade-offs between members of society. Foregoing

expensive services with low probability of success for some patients, and using the savings to purchase immunizations for others might improve total social utility, but it would be redistributive, producing individual winners and losers. The incidence of costs can also vary among individuals—some may save more or pay more than others toward the collective social spending on health care. Although individual-level analyses of welfare can be interesting and important, the question of overall social benefit or loss is an important question from a general policy perspective, and it is the one I focus on here.

The question, then, is whether social utility is higher or lower in a world dominated by managed care than it would have been in a (hypothetical) world without managed care. In a given time period t , a system dominated by managed care will produce some level of health, amenities, and spending that will yield a level of utility U_t^M . A fee-for-service system would also produce some level of health, amenities, and spending, generating U_t^F . Society is better off with managed care at that point in time if $U_t^M > U_t^F$ and worse off if $U_t^M < U_t^F$.

Since the health care system is continuing to evolve, an evaluation would also do well to take into account both present and future levels of utility, with appropriate discounting to account for the difference between value now and value later. When utilities over time are taken into account, activities that have value now but hurt future value, like cost cutting that produces no current change in treatments but does affect research and hence the prospects for future treatments, would have to be weighed against each other.

Without knowing the specific functional forms, it is impossible to precisely evaluate society's utility or the impact managed care has on it. However, given information about the impact of managed care on health, amenities and patient satisfaction, and costs, we can draw inferences about the likely effects. That is, an informed perspective on this question can be obtained by evaluating any reduction in health and amenities managed care has brought about relative to any savings it has generated. The next three sections discuss the large and growing literature that provides insight into these questions.

TREATMENT PATTERNS, SATISFACTION, AND OUTCOMES FOR PATIENTS IN MANAGED CARE

One important body of literature compares treatment patterns, health outcomes, satisfaction, and spending for patients who enroll in managed care organizations and those who do not. This literature contains hundreds of studies, and I do not attempt to review them all here. Rather, I summarize the results of several good reviews that synthesize information from the many original studies. Luft (1981) summarized studies done between 1959 and 1975. Miller and Luft (1994) compiled results from studies done between 1980 and 1993. Miller and Luft (1997) compiled results from studies done between 1994 and 1997. Dudley et al. (1998) reviewed work primarily on outcomes done between 1980 and 1997.¹ A wide range of studies are also reviewed in Glied (2000) and Chernew et al. (1998).²

The comparison studies discussed here share some general characteristics. First, they almost all focus on patients enrolled in HMOs. This is useful because HMOs are a classic form of managed care organization and are still probably the most aggressive form of managed care organization in the marketplace. Yet, existing studies provide little information about the experience of patients in PPOs or other types of managed care plans.

Second, almost all of these studies attempt to compare patients in HMOs to patients in traditional indemnity plans. This is a sensible comparison group, but it does raise issues because of the general evolution of health plans over the past decade. It is relatively rare now to find even indemnity health insurers that have not adopted some managed care strategies. Earlier studies may thus provide more easily interpretable comparisons than later studies, because the characteristics of the control group in earlier studies are clearer. More recently, studies of Medicare patients may be most useful since Medicare maintains a relatively unmonitored fee-for-service system for its traditional enrollees.

Third, few of these studies are randomized. Most of them examine groups of patients for whom the plan in which they are enrolled is the product of a choice made by the enrollee or by some other entity, like an employer. If the health status, preferences, or other characteristics

of HMO enrollees differ from those of other patients, results from comparative studies could be biased. Indeed, a large body of literature suggests that health status does frequently differ between patients in and out of HMOs (e.g., Hellinger 1987, 1995; Glied 2000). Many comparison studies do attempt to control for differences in the characteristics of patients, but the methods used and the quality of the available control variables vary from study to study. One notable exception is the RAND Health Insurance Experiment, a randomized trial conducted in the late 1970s and early 1980s. As part of the trial, 1,149 patients were randomized to join the Group Health Cooperative of Puget Sound, a staff-model HMO, providing a study design capable of avoiding problems with selection bias (Manning et al. 1984).

Despite these inconveniences, this literature does provide an important window into the impacts of managed care, producing a number of very consistent and strong findings. I review evidence on treatment patterns first, followed by satisfaction, health outcomes, and spending.

Comparing Treatments for Managed Care and Non-Managed Care Patients

Managed care patients use the hospital less than patients in indemnity plans. The earliest studies indicated lower hospital utilization stemming from reductions in admission rates (Luft 1981). Work done between 1980 and 1993 frequently finds reductions in length of stay as well. Miller and Luft (1994) reported that HMO hospital admission rates were lower in 8 of 11 studies that presented evidence on admissions, with the most credible evidence suggesting reductions of 26 percent to 37 percent. They also found shorter lengths of stay in 15 of 16 observations in their study, with the strongest evidence suggesting a length of stay reduction of 14 percent. Evidence from the RAND Health Insurance Experiment confirms these results, reporting 40 percent lower inpatient admission rates and total inpatient days among patients randomized to the HMO arm of the trial (Manning et al. 1984). The most recent (nonrandomized) evidence, however, produces a less clear pattern and smaller differences, although there are relatively few recent results on hospital utilization (Miller and Luft 1997).

A common goal of managed care plans is to replace relatively expensive hospital utilization with less expensive outpatient care. Thus, one might expect to see reductions in hospital use offset by increases in outpatient visits. Although early evidence tended to support this view (Luft 1981), more recent evidence is not as clear. Miller and Luft (1994) found higher outpatient utilization among HMO patients in half of the 14 observations they reviewed, and lower outpatient utilization in the others (although the studies they reviewed with the strongest data tended to suggest higher or similar outpatient utilization in HMOs). Miller and Luft (1997) reported no overall pattern in the results of studies done between 1994 and 1997. Evidence from the RAND Health Insurance Experiment also suggested no differences in the overall rate of face-to-face visits (Manning et al. 1984).

A wide range of studies suggest that patients enrolled in HMOs are less likely to get intensive, costly tests and procedures. Miller and Luft's two reviews (1994, 1997) included a total of 24 observations on a range of advanced and frequently expensive services, including treatments associated with childbirth, heart disease, and cancer. They found less use among HMO patients in 22 of the 24 cases. In most of these cases the reductions were relatively large: the modal odds ratio associated with HMO enrollment was about 0.80, indicating that the odds of receiving the intensive procedure were about 20 percent lower in HMOs relative to indemnity plans. Some more recent studies confirm these findings. For example, Chernew, Fendrick, and Hirth (1997) reported lower use of cholecystectomy in HMO patients than indemnity patients at a given point in time.

Interestingly, while many studies report lower use of costly tests and procedures among HMO patients at a given point in time, some research suggests that trends over time are similar in and outside of HMOs (Chernew et al. 1998). For example, Langa and Sussman (1993) found similar growth between 1983 and 1988 in the use of coronary revascularization among HMO and non-HMO patients, although HMO patients use the technology less at any given point in time. Chernew, Fendrick, and Hirth (1997) showed that the change in cholecystectomy use by HMO patients over 1989–1994 was similar to the change seen in the overall health care system.

Studies also suggest that HMO enrollees are also less likely to get access to home health care than indemnity patients. Both Miller and

Luft (1997) and Dudley et al. (1998) identified multiple studies indicating significantly less home health use among HMO patients.

On the other hand, HMO patients are more likely to receive preventive care. Miller and Luft (1994) reported that HMO enrollees consistently receive more preventive tests, including cancer screening, hypertension screening, and a variety of regular examinations. HMO enrollees also receive more health promotion activities, like smoking cessation counseling, than indemnity plan enrollees. Dudley et al. (1998) confirmed this finding with more recent data. Evidence from the RAND Health Insurance Experiment also supports this view, finding higher rates of preventive visits among those randomized to the HMO (Manning et al. 1984).

Comparing Satisfaction for Managed Care and Non-Managed Care Patients

Along with changes in treatment patterns have come many changes in the amenities of the health care system. In pursuit of lower costs, managed care plans have imposed restrictions on patient choice of providers; minimized staff, which has led to shorter visit times and less opportunity for interaction; and placed more burdens on patients to navigate increasingly complex systems for obtaining approval for care. Many patients, along with their doctors, have sought care that was denied, sometimes for reasons that are difficult to understand. Many physicians are dissatisfied with the payment rates of managed care plans. Increasing reliance on gatekeeper physicians and financial incentives that reward physicians for doing less have undermined patient trust in physicians, which can color the perceptions of both patients and physicians. As they have become more prominent, these kinds of changes have led to widespread anecdotal reports of dissatisfaction and backlash among patients and providers.

Consistent with these reports, studies that assess overall patient satisfaction almost always find that HMO enrollees are less satisfied with their plans than enrollees in other types of plans, primarily indemnity or PPO plans (Miller and Luft 1994, 1997; Dudley et al. 1998). This overall finding is not surprising, but it has two important nuances that should be noted. First, studies that separately identify satisfaction with financial and nonfinancial aspects of health plans typically find

the greatest discontent in nonfinancial areas. HMO enrollees systematically report being less satisfied with things like the technical proficiency of the care they received, their relationships with clinicians, the amount of time spent with clinicians, and access and availability of specialists. On the other hand, HMO enrollees are frequently more satisfied with the financial aspects of their plans. Managed care plans frequently require less out-of-pocket spending than indemnity plans with potentially high deductibles. Managed care plans can also require less paperwork to handle for insurance reimbursement than indemnity plans.

Second, studies that focus on lower-income populations, many of which have joined HMOs under emerging Medicaid managed care programs, frequently find that HMO enrollees are more satisfied with both financial and nonfinancial aspects of their plans. This may be understandable given that many of these patients are covered by Medicaid, and fee-for-service Medicaid has historically been very difficult to navigate. Outside of Medicaid, lower-income groups seeking low premiums can end up in high-deductible or other stringent plans that do not offer much care to enrollees.

Comparing Health Outcomes for Managed Care and Non-Managed Care Patients

On the whole, the literature on health outcomes fails to find a consistent pattern either for or against HMOs. Studies from the 1980s and early 1990s tend to suggest equal or better quality of care in HMOs. Fourteen of 17 observations summarized by Miller and Luft (1994) showed HMOs to be the same as or better than indemnity plans on a range of measures, including care for patients with congestive heart failure, colorectal cancer, diabetes, hypertension, cerebrovascular accident, or chronic problems like joint pain and chest pain. Only a few observations suggested worse quality of care in HMOs.

But, this pattern disappears in more recent work. Miller and Luft (1997) reviewed a number of articles that examined outcomes ranging from mortality to measures of physical functioning among patients with specific serious health conditions, to more general measures of patient health applicable to the broad population. Some of the studies reviewed found better outcomes in HMOs, including studies showing

HMO enrollees having lower risk of ruptured appendix, lower risk of dying in the intensive care unit, lower breast cancer mortality, better stage at diagnosis of cancer, better physical functioning (as measured by activities of daily living [ADL] and instrumental activities of daily living [IADL] scales), better glycosylated hemoglobin levels among diabetics, and better mental health functioning. On the other hand, a number of studies found worse outcomes in HMOs, including studies reporting higher mortality rates among breast cancer patients and high-risk newborns, as well as worse physical and mental health functioning among chronically ill patients and elderly patients. In between, a large number of studies reported no pattern of different results or a mixture of findings favorable and unfavorable to HMOs.

Of 35 observations considered by Dudley et al. (1998) comparing mortality, clinically significant morbidity, and laboratory abnormalities, most found no significant differences between HMOs and indemnity plans. Among the few that did find significant differences, there was no clear pattern favoring either HMOs or indemnity plans. Dudley et al. (1998) also reviewed several studies of process of care measures. Here, although a number of studies found differences between HMOs and indemnity plans in one direction or another, there was also no clear pattern favoring one over the other.

This literature supports the general view that there is not a systematic effect of HMOs on outcomes. In particular, there is no clear evidence that population outcomes are systematically worse in HMOs. That said, though, it is important to note that there are some subgroups of the population that evidence suggests may be affected. First, although the literature is not unanimous, there is some evidence that outcomes are worse among vulnerable populations in HMOs (e.g., Ware et al. 1996), which may give rise to concern for their well-being. Second, there are some particular conditions for which outcomes in HMOs appear to be worse and others for which outcomes appear to be better. Drawing the general conclusion that there is no systematic effect of HMOs based on population-wide evidence from a number of different conditions implicitly assumes that each of society's constituent subgroups and all health conditions should carry equal weight in an overall assessment. But this need not be the case. Society may find it desirable to put more weight on the health outcomes of some members of the population, like the socioeconomically disadvantaged, or give

more weight to those who suffer from some diseases and less to those who suffer from others. In this case, a thorough evaluation would need to aggregate results for each population group and condition, weighting by measures of their significance. Developing a scheme to weight conditions and carrying out such a calculation is beyond the scope of this chapter and will have to be left for future study.

The fact that the literature does not support the view that outcomes are systematically worse in managed care plans may be something of a surprise given the extensive news coverage devoted to the adverse impacts of managed care on health. But, it is important to remember that bad things happened to undeserving patients under fee-for-service too. In some cases, it is likely that this was the result of overprovision of care encouraged by the financing system, although such events were rarely reported in the press and were certainly not linked to the health insurance system in place at the time.

It is interesting to note that the earliest studies suggested better outcomes in HMOs than outside, but this pattern fades with time. One (although not the only) interpretation of this finding is that the spread of managed care has influenced treatment patterns throughout the market, leading differences between HMOs and other plans to disappear over time as the other plans come to more closely resemble HMOs.

Comparing Expenditures for Managed Care and Non-Managed Care Patients

Studies of expenditures by HMO and indemnity patients frequently report that expenditures are lower in HMOs. Miller and Luft (1997) reported that the majority of the studies they reviewed showed lower total spending on health care for HMO patients than fee-for-service patients, with spending differences ranging from 16 percent to 34 percent. Earlier data are sparser, but the two studies reviewed by Miller and Luft (1994) that provided information about total spending reported spending by HMO enrollees to be 11–13 percent lower than spending by fee-for-service patients. Note that these expenditures include spending by the plan on health care received, not the premiums paid for coverage or other costs. From society's perspective, expenditures for care are perhaps the more important dimension to consider.

While most of the evidence available focuses on HMOs, there is some limited evidence on expenditures for PPO patients, but it ends up mixed. Smith (1997) suggested that PPO patients have lower expenditures than indemnity patients, but Hosek et al. (1990) found that PPOs have higher unit costs.

EVIDENCE FROM MARKET LEVEL STUDIES

Additional information about the impacts of managed care is available from studies that compare the performance of the health care system in market areas with high levels of managed care activity and market areas with lower levels. The approach taken in these kinds of studies is to classify markets³ based on the overall level of managed care activity, frequently measured as HMO market share (i.e., the proportion of the population enrolled in an HMO), and then examine differences in the structure of the health care delivery system, treatments, costs, and outcomes in markets with varying levels of market share.

One important aspect of market level studies is exploration of the so-called “spillover effects” of managed care, by which the presence of managed care in an area influences care for patients not enrolled in managed care plans. This could occur through a variety of mechanisms. Managed care could influence the structure of the health care delivery system or its capabilities. For example, markets with high levels of managed care activity could end up with more outpatient surgery centers and fewer MRI machines, which could influence the treatment options available even to non-managed care patients. The presence of managed care could also influence the treatment choices of physicians if managed care plans disseminate information or otherwise influence physician practice patterns, and this information reaches physicians who care for non-managed care patients.

Comparing Expenditures among Markets

Expenditures are by far the most common focus of market comparisons (see, e.g., Baker 1997, 1999; Clement et al. 1992; Feldman et al. 1986; Gaskin and Hadley 1997; Noether 1988; McLaughlin 1987,

1988; Robinson, 1991, 1996; Rodgers and Smith, 1995; Welch, 1994).⁴ Most of these studies focus on overall expenditures, including expenditures by both managed care and non-managed care patients, but some include only expenditures by non-managed care patients to explicitly explore the potential for spillover effects on spending. Many of these studies focus on in-hospital spending, although some of them examine broader measures that encompass spending on outpatient and other care. Using whatever measure, though, these studies by and large report that overall spending and spending for non-managed care patients is lower in areas with high levels of market share. In particular, more recent studies clearly suggest that the presence of managed care in an area reduces overall hospital expenditures and spending for fee-for-service Medicare beneficiaries.

Interpreting the results of these studies is complicated by the fact that expenditures are the product of price and quantity, so lower expenditures could reflect change in one or the other or both. Some of the evidence is consistent with the view that treatment patterns have changed, so that patients in high managed care areas (even non-managed care patients) receive fewer intensive treatments and fewer hospitalizations. Medicare hospital expenditures, for example, should not be strongly subject to variation in price since the Prospective Payment System centrally determines prices. Hence, the most natural interpretation of studies that show reductions in Medicare inpatient spending associated with higher managed care activity (e.g., Baker 1997, 1999; Clement et al. 1992; Rodgers and Smith 1995) is that practice patterns have shifted so that patients receive fewer hospitalizations and fewer intensive tests and procedures. Some direct evidence supports this finding. Baker et al. (2000b) and Heidenreich et al., (2000) reported that treatments for fee-for-service Medicare patients who suffered acute myocardial infarctions varied with the level of area HMO market share.

Outside of Medicare, it is more plausible that increased managed care activity led to reductions in the prices charged by hospitals and other providers, which could contribute to reductions in overall expenditures in some of these studies. Some studies suggest that increased competition between hospitals can reduce expenditures (Chernew et al. 1998), and that the presence of managed care plans can enhance competition (Kessler and McClellan 2000; Feldman et al. 1990).

Comparing Infrastructure and Capabilities among Markets

A range of market comparison studies suggest that managed care can influence the number and types of providers, the capabilities of the health care system, and the ways in which the system is organized. In most cases, these studies report that the characteristics of high managed care markets reflect the changes in care patterns that managed care brings about. Consistent with findings that managed care plans tend to use hospitals less, Chernew (1995) reported that areas with higher HMO market share had fewer hospital beds in the mid and late 1980s. Consistent with the view that managed care plans are apt to use less care overall and refer their patients to specialist physicians less often, Escarce et al. (1998, 2000) and Polsky et al. (2000) reported that high managed care areas attract and retain fewer physicians, particularly specialists. Consistent with the fact that managed care plans tend to selectively contract with a limited number of providers to obtain many services for their patients, Baker and Brown (1999) reported that managed care prompted consolidation in the mammography market. Managed care may also contribute to consolidation in other provider markets. Burns et al. (2000) reported that physicians and hospitals in markets with more HMOs (although not higher market share) were more likely to form alliances between 1993 and 1995 compared to those in markets with fewer HMOs.

Evidence also supports the view that managed care has slowed the adoption of many technologies, particularly high-cost, infrastructure-intensive new technologies. Baker and Wheeler (1998) and Baker (forthcoming) suggested that high managed care areas saw slower adoption of MRI equipment over the 1980s and 1990s. Baker and Phibbs (2000) suggested that managed care slowed the adoption of mid-level neonatal intensive care units (NICUs). Cutler and Sheiner (1998) reported that managed care is associated with slower diffusion of a range of hospital-based technologies. Cutler and McClellan (1996) showed that high managed care areas adopted cardiac revascularization services at slower rates between 1984 and 1991. This literature is not unanimous, however. Baker and Spetz (1999) reported no differences in an index of hospital technologies between higher and lower managed care areas, and Hill and Wolfe (1997) reported mixed

effects of managed care on diffusion of a range of technologies in Wisconsin during and after a transition to managed care dominance.

Comparing Health Outcomes among Markets

There is relatively little evidence on outcomes from market comparison studies. The evidence that does exist concurs with that discussed earlier, namely, that there is not a body of work clearly showing that managed care has systematically worsened outcomes. Baker and Brown (1999) examined breast cancer stage at diagnosis and mortality rates in high and low managed care areas and found no significant differences. Baker et al. (2000b) examined mortality rates for acute myocardial infarction (heart attack) patients and also found no significant differences. Baker and Phibbs (2000) reported that mortality rates for high-risk newborns were probably improved by managed care–induced reductions in the diffusion of mid-level NICUs.

AGGREGATE SPENDING PATTERNS SINCE THE RISE OF MANAGED CARE

Comparisons among plans and among markets suggest that managed care is able to lower expenditures to at least some extent. Another source of information is the patterns in overall health care spending over the time period in which managed care has come to play an important role in the health care system. After rising at an annual rate of more than 10 percent between 1980 and 1990, annual growth in spending slowed to a rate of 4–5 percent between 1994 and 1997,⁵ about the time when managed care had grown to the point where it could plausibly be a force in U.S. health expenditures. The slowdown was most pronounced in hospital spending, where annual growth rates fell to just above 3 percent during this time period, consistent with research suggesting that managed care has particularly targeted hospital use. Other areas of spending that do not seem to have been as strong a focus of managed care plans during this period, like prescription drugs, maintained high growth rates.

More recently, however, rates of increase in spending have picked up. Figures for 1998, the most current available at the time of this writing, suggest annual growth in total health care spending was higher than it had been in previous years, although still below the 10 percent increases seen in the 1980s.

SYNTHESIS: ARE WE BETTER OFF OR NOT?

What can all of this evidence together tell us about the impact managed care has had on society? Existing literature supports the view that managed care has significantly shifted practice patterns, reducing the use of the most advanced and intensive treatments and the use of hospitals. These changes appear capable of spilling over to non-managed care patients, who are also treated differently in places where managed care is prevalent. Further, changes in treatment patterns and other incentives accompanying growth in managed care appear to have influenced the structure and capabilities of the medical care system.

There is, however, little evidence that any of these changes have systematically worsened the health of patients. Evidence does support the view that some patients with some conditions have worse outcomes under managed care than fee-for-service, but evidence also suggests that other patients do better. While managed care has not led to overall worse health, it has led to increasing dissatisfaction. Patients are annoyed by a host of factors, including the burdens placed on them in managed care plans, their perception that health care has become more impersonal, their perception (not necessarily supported by the evidence) that the health care they are receiving is of lower quality, their inability to have complete autonomy in the choice of physicians, and their inability to receive all of the care that they might want, particularly the most advanced and expensive treatments.

At the same time, managed care does seem to have produced some savings in the form of lower expenditures on health care. While there is debate about whether or not these savings will persist over time, evidence so far suggests that managed care patients spend less than indemnity patients, that spending is lower in high managed care areas,

and that overall U.S. health expenditures grew at slower rates during at least part of the era of managed care.

If managed care does not bring about changes in the health of the population, an assessment of its impact on the current utility of the population depends on the value of the expenditure reductions it produces compared to the value of reduced amenities and satisfaction. At least to this point, evidence would suggest that the net impact of managed care is that we now purchase less fancy and less satisfying health care at a cost that is at least somewhat lower. Society's utility will be higher under managed care than under the former regime if the value of the savings outweighs the value of the lost amenities, and it will be lower if not.

Judging from the public outcry against managed care, it appears that many Americans are unwilling to accept this trade-off. Public backlash against managed care is increasingly evident, and it has prompted numerous regulatory and legislative attempts to inhibit the ability of managed care organizations to engage in activities that they have used to manage utilization, like capitation, utilization review, and restricting choices of providers.

One might wonder, however, about the extent to which the public reaction reflects the results of careful consideration. Many Americans believe that they receive their health care for "free" from their employers or from the government; they do not take into account the true costs of purchasing their health care when they evaluate the costs and benefits of health care proposals. A backlash is understandable when a public is confronted with a reduction in amenities without offsetting savings that are easily recognized, but it need not imply a reasoned conclusion that managed care has lowered utility. Furthermore, many Americans appear to believe that managed care has led to worse health outcomes, a view for which the currently available empirical evidence is not strong. The rejection of managed care might be less pronounced if debate were informed by actual evidence rather than by anecdote and media reports.

On the other hand, there are many informed consumers in the United States, and there has been public debate about health care market changes and health reform proposals for a number of years, frequently highlighting the trade-offs between higher costs, utilization, and amenities. Yet the backlash continues. In some contexts, the

debate over President Clinton's health care proposals in 1993 and 1994 was carried out in the framework of a trade-off between encouraging more restrictive managed care in return for savings that could be put to other purposes, like covering the uninsured, and it was rejected. Perhaps in the managed care backlash, Americans—at least some of them—have shown their desire to pay, perhaps in large amounts, to receive the most advanced and expensive health care in the world, even if it does not make them truly healthier.

It is not clear how many Americans fall into this latter category. It is not difficult to believe that much of the managed care bashing observed today is the result of incomplete information about the true effects of managed care. Going forward, informed public debate about the true costs and benefits of managed care could significantly help the country arrive at a consensus about the most useful set of public policy steps to take with respect to managed care.

It would be inappropriate to end this discussion without a comment on the problem of the uninsured. The United States is now, and has for a long time been, burdened with the fact that our health care financing system leaves many people without coverage at all, subjecting them to worse than average health care access and leaving them with much worse than average health outcomes. The advent of managed care has done little to change this, either for better or for worse, so it is not truly a factor in a debate about the impact of managed care on overall utility. At the same time, one of the early hopes for managed care was reductions in spending and premiums and a true community spirit, which might have enabled more employers and individuals to purchase health insurance and contributed to reductions in the rate of uninsurance. In practice, though, this does not seem to have happened.

ASSESSING THE PROSPECTS FOR THE FUTURE

Beyond the impact managed care has had on the U.S. health care system up to this point, there are important questions that it raises about the future development of the health care system. In some ways, these are potentially more important than questions about the impact of managed care to date. Managed care has put us on a path toward the

future that is different from the path we would have been on had we continued with the traditional fee-for-service system, and these two paths could easily diverge substantially over the course of time. This section highlights four important issues that will contribute to determining the destination of the managed care path.

First, what effects will managed care have on the future development of the delivery system? Substantial changes in the number and types of providers and the capacity of the system could compound over time and greatly alter the future characteristics of the health care delivery system. One particularly important possibility is that technology advancement will be inhibited. Areas with high levels of managed care are less likely to adopt new technologies and equipment. Fewer potential purchasers for new products may mean less effort devoted to developing new products for market. Managed care also appears capable of influencing the time spent on research. For example, faculty in medical schools have traditionally been an important source of new innovations, but they face increasing pressure in managed care-dominated environments, which may lead them to devote more time to clinical activities and less to their research efforts. Moy et al. (1997) and Campbell et al. (1997) substantiated this possibility, reporting that increases in managed care activity and competition are associated with reductions in the number and dollar amount of research awards obtained by faculty researchers. One of the historical strengths of the U.S. health care system is the level of innovation and new advances that have brought great benefits to patients. Reductions in innovation could have very important implications for overall well-being, albeit in ways that could be hard to assess since we are unlikely to be able to identify the things not invented because of managed care.

While managed care could well alter the path of future innovation, it is important to note that it is unlikely to kill innovation altogether. Managed care plans are unlikely to discourage all innovations; rather, they can be expected to focus most intently on those that they perceive to be cost-ineffective. Managed care may, in fact, substantially reward new innovations viewed as cost-effective. Managed care plans may be able to reward these kinds of innovations much more quickly and substantially than the traditional fee-for-service system because of the influence they can have over utilization decisions. Moreover, managed care plans have not always been able to cut off the use of new and

expensive technologies that patients strongly demand (even when they have tried to do so, patients have frequently been able to turn to either the courts or the press to gain coverage of new treatments), making it far from clear that markets for new innovations will dry up under managed care. A survey conducted by Weisbrod and LaMay (1999), in fact, reported that managers of firms involved in research and development do not view managed care as reducing their inclination to conduct research on advanced and expensive new technologies, particularly those that hold the greatest prospects for substantial improvements in medical capabilities.

Beyond technology development, managed care could also alter the future development of other aspects of the delivery system. For example, existing evidence suggests that managed care plans tend to use the intensive services provided by specialists less than indemnity plans, and cross-market comparisons report that areas with high levels of managed care have fewer specialist physicians. Growth in managed care has also fueled powerful discontent among physicians. This suggests the potential for managed care to reduce the number of candidates for medical school, particularly the number of students interested in pursuing specialized career paths, which could leave the future health care system with a very different mix of providers than we currently have and influence the future of patient care.

A second key question with respect to the future impact of managed care is the extent to which costs will be lower. Evidence up until now suggests that managed care has lowered costs at least somewhat. However, this may only consist of one-time savings obtained by squeezing inefficiencies out of the health care system without fundamentally changing the growth path of expenditures. On the other hand, the savings seen so far could reflect a persistent lowering of the future trajectory of expenditures. The dollar difference between these two scenarios is large. If health expenditures continue growing at 3–5 percent per year instead of 10 percent, the accrued savings over time would be much larger than if we return immediately to 10 percent growth rates after having lower growth for four or five years in the mid 1990s.

It is difficult to assess the direction in which costs are likely to go. On one hand, overall spending rose faster between 1997 and 1998 than it had during the preceding three years, consistent with the suspicion

that at least some of the savings obtained in the mid 1990s were the results of one-time savings, and that cost growth is tending toward a return to its former high level. On the other hand, the consensus view among economists is that technology growth is the leading driver of increasing health care costs (Fuchs 1996), accounting for as much as half of the rise in expenditures in recent decades (Newhouse 1992; Chernew et al. 1998). As noted above, evidence suggests that managed care can somewhat slow the adoption of new technologies, although the extent to which this will persist is not clear.

A third issue is the extent to which the preferences of the population will evolve. While the U.S. population now appears to strongly value the amenities to which they have become accustomed, preferences could change over time. Patients in the United States may adapt their expectations to managed care and become less concerned about reductions in amenities once they are not so recent in memory. Growth in managed care and increases in the availability of information about objective quality of care may also lead people to place greater value on actual quality and health outcomes than on amenities, which may now be valued in part because there is little other information available on which to base judgements.

Finally, the impact of managed care in the future depends on the characteristics of managed care in the future. The current public backlash against managed care has led many managed care organizations to voluntarily allow more freedom in choosing a provider and impose less oversight on physician decision making. Numerous legislative and regulatory activities aim to further limit the ability of managed care organizations to engage in the practices they have relied upon in the past to manage care. One plausible outcome of this is a weakening of the most aggressive managed care plans and a corresponding return toward previous cost and care trends, for better or worse, over the long run.

Only time will tell, but one can hope that clear discussions among policymakers and the public can help bring about a well-informed consensus about the importance of health, amenities, and health care spending that can guide efforts to improve our health care system as we go forward.

Notes

1. The Luft (1981), Miller and Luft (1994, 1997), and Dudley et al. (1998) reviews make explicit attempts to include only studies meeting certain quality standards, including passing peer review and having included reasonable attempts to control for confounding differences in patient samples.
2. The sets of studies reviewed in these articles are not completely independent. Although there is no overlap between the two Miller and Luft reviews, both Glied (2000) and Dudley et al. (1998) to a large extent overlap the Miller and Luft (1994, 1997) reviews.
3. Cities, defined by the set of Metropolitan Statistical Areas, are the most common unit of analysis, although others are sometimes used (e.g., states or counties).
4. Some additional studies report evidence on premiums (e.g., Baker and Corts 1996; Feldman, Dowd, and Gifford 1993; Wickizer and Feldstein 1995; Goldberg and Greenberg 1979; Baker et al. 2000a; Hill and Wolfe 1997). Some of this work suggests that managed care premiums are lower, or that overall premiums are lower in areas with more managed care, although it is not unanimous. This tends to corroborate evidence suggesting lower overall expenditures, but since premiums can be influenced by cost shifting and other peculiarities of the insurance market, this evidence is not as valuable as evidence on expenditures when assessing the impacts on the overall well-being of society.
5. Expenditure data are from the Health Care Financing Administration's Web site: www.hcfa.gov.

References

- Baker, Laurence C. 1997. "The Effect of HMOs on Fee-For-Service Health Care Expenditures: Evidence from Medicare." *Journal of Health Economics* 16(4): 453–482.
- _____. 1999. "Association of Managed Care Market Share and Health Expenditures for Fee-For-Service Medicare Patients." *Journal of the American Medical Association* 281(5): 432–437.
- _____. Forthcoming. "Managed Care and Technology Adoption in Health Care: Evidence from Magnetic Resonance Imaging." *Journal of Health Economics*.
- Baker, Laurence C., and Martin L. Brown. 1999. "Managed Care, Consolidation among Health Care Providers, and Health Care: Evidence from Mammography." *RAND Journal of Economics* 30(2): 351–374.
- Baker, Laurence C., and Kenneth S. Corts. 1996. "HMO Penetration and the Cost of Health Care: Market Discipline or Market Segmentation?" *American Economic Review* 86(2): 389–394.

- Baker, Laurence C., and Ciaran S. Phibbs. 2000. "Managed Care, Technology Adoption, and Health Care: The Adoption of Neonatal Intensive Care." Working paper no. 7883, National Bureau of Economic Research, Washington, D.C.
- Baker, Laurence C., and Joanne Spetz. 1999. "Managed Care and Medical Technology Growth." In *Frontiers in Health Policy Research, Volume 2*, Alan M. Garber, ed. MIT Press: Cambridge, Massachusetts, pp. 27–52.
- Baker, Laurence C., and Susan K. Wheeler. 1998. "Managed Care and Technology Diffusion: The Case of MRI." *Health Affairs* 17(5): 195–207.
- Baker, Laurence C., Joel C. Cantor, Stephen Long, and M. Susan Marquis. 2000a. "HMO Market Penetration and Employer Health Plan Costs." *Health Affairs* 19(5): 121–128.
- Baker, Laurence C., Paul Heidenreich, Jeffrey Geppert, and Mark B. McClellan. 2000b. "The Effect of Area HMO Market Share on Treatments, Costs, and Outcomes for Fee-For-Service AMI Patients." Working paper, Stanford University, Stanford, California.
- Brook, Robert H. 1989. "Practice Guidelines and Practicing Medicine: Are They Compatible?" *Journal of the American Medical Association* 262(21): 3027–3030.
- Burns, Lawton R., Gloria J. Bazzoli, Linda Dynan, and Douglas R. Wholey. 2000. "Impact of HMO Market Structure on Physician-Hospital Strategic Alliances." *Health Services Research* 35(1): 101–132.
- Campbell, E.G., J.S. Weissman, and D. Blumenthal. 1997. "Relationship between Market Competition and the Activities and Attitudes of Medical School Faculty." *Journal of the American Medical Association* 278(3): 222–226.
- Chernew, Michael. 1995. "The Impact of Non-IPA HMOs on the Number of Hospitals and Hospital Capacity." *Inquiry* 32(2): 143–154.
- Chernew, Michael, A. Mark Fendrick, and Richard A. Hirth. 1997. "Managed Care and Medical Technology: Implications for Cost Growth." *Health Affairs* 16(2): 196–206.
- Chernew, Michael E., Richard A. Hirth, S.S. Sonnad, R. Ermann, and A. Mark Fendrick. 1998. "Managed Care, Medical Technology, and Health Care Cost Growth: A Review of the Evidence." *Medical Care Research and Review* 55(3): 259–288.
- Clement, Dolores Gurnick, Phillip M. Gleason, and Randall S. Brown. 1992. "The Effects of Risk Contract HMO Market Penetration on Medicare Fee-For-Service Costs: Final Report." Report for the Mathematica Policy Research: Princeton, New Jersey.

- Cutler, David, and Mark McClellan. 1996. "The Determinants of Technological Change in Heart Attack Treatment." Working paper no. 5751, National Bureau of Economic Research, Washington, D.C.
- Cutler, David M., and Louise Sheiner. 1998. "Managed Care and the Growth of Medical Expenditures." In *Frontiers in Health Policy Research*, Alan M. Garber, ed. MIT Press: Cambridge, Massachusetts, pp. 77–116.
- Dudley, R. Adams, Robert H. Miller, Tamir Y. Korenbrot, and Harold S. Luft. 1998. "The Impact of Financial Incentives on Quality of Health Care." *Milbank Quarterly* 76(4): 649–686.
- Escarce, Jose J., Daniel Polsky, Gregory Wozniak, Mark V. Pauly, and Philip R. Kletke. 1998. "HMO Penetration and the Practice Location Choices of New Physicians: A Study of Large Metropolitan Areas in the U.S." *Medical Care* 36(11): 1555–1566.
- Escarce, Jose J., Daniel Polsky, Gregory Wozniak, and Phillip R. Kletke. 2000. "HMO Growth and the Geographical Redistribution of Generalist and Specialist Physicians, 1987–97." *Health Services Research* 35(4): 825–848.
- Feldman, Roger, Bryan Dowd, and Gregory Gifford. 1993. "The Effect of HMOs on Premiums in Employment-Based Health Plans." *Health Services Research* 27(6): 779–811.
- Feldman, Roger, Bryan Dowd, Don McCann, and Allan Johnson. 1986. "The Competitive Impact of Health Maintenance Organizations on Hospital Finances: An Exploratory Study." *Journal of Health Politics, Policy, and Law* 10(4): 675–698.
- Feldman, Roger, Hung-Ching Chan, John Kralewski, Bryan Dowd, and Janet Shapiro. 1990. "Effects of HMOs on the Creation of Competitive Markets for Hospital Services." *Journal of Health Economics* 9: 207–222.
- Fuchs, Victor. 1996. "Economics, Values, and Health Care Reform." *American Economic Review* 86(1): 1–24.
- Gaskin, Darrel J., and Jack Hadley. 1997. "The Impact of HMO Penetration on the Rate of Hospital Cost Inflation, 1985–1993." *Inquiry* 34(3): 205–216.
- Glied, Sherry. 2000. "Managed Care." In *Handbook of Health Economics*, J.P. Newhouse and A.J. Culyer, eds. North Holland: Amsterdam, pp. 707–752.
- Goldberg, Lawrence G., and Warren Greenberg. 1979. "The Competitive Response of Blue Cross and Blue Shield to the Growth of Health Maintenance Organizations in Northern California and Hawaii." *Medical Care* 17(10): 1019–1028.
- Health Insurance Association of America. 1991. *Sourcebook of Health Insurance Data*. Health Insurance Association of America: Washington, D.C.

- Heidenreich, Paul A., Mark B. McClellan, Craig Frances, and Laurence C. Baker. 2000. "Managed Care Market Share and Treatment of Myocardial Infarction for Fee-For-Service Medicare Patients." Working paper, Stanford University, Stanford, California.
- Hellinger, Fred J. 1987. "Selection Bias in Health Maintenance Organizations: Analysis of Recent Evidence." *Health Care Financing Review* 9(2): 55–63.
- _____. 1995. "Selection Bias in HMOs and PPOs: A Review of the Evidence." *Inquiry* 32(2): 135–142.
- Hill, S.C., and B.L. Wolfe. 1997. "Testing the HMO Competitive Strategy: An Analysis of Its Impact on Medical Resources." *Journal of Health Economics* 16(3): 261–286.
- Hoechst Marion Roussel. 1999. *HMO-PPO/Medicare-Medicaid Digest*. HMR Managed Care Digest Series, vol. 3. Wayne, New Jersey: Health Learning Systems.
- Hosek, S.D., M. Susan Marquis, and K.B. Wells. 1990. *Health Care Utilization in Employer Plans with Preferred Provider Organization Options*. Santa Monica, California: RAND.
- Interstudy. 1994. *Competitive Edge: HMO Industry Report*. Excelsior, Minnesota: Interstudy.
- Kessler, D., and M. McClellan. 2000. "Is Hospital Competition Socially Wasteful?" *Quarterly Journal of Economics* 115(2): 577–617.
- Langa, K.M., and E.J. Sussman. 1993. "The Effect of Cost-Containment Policies on Rates of Coronary Revascularization in California." *New England Journal of Medicine* 329(24): 1784–1789.
- Luft, Harold S. 1981. *Health Maintenance Organizations: Dimensions of Performance*. New York: John Wiley and Sons.
- Manning, Willard G., Arlene Leibowitz, G. Goldberg, W. Rogers, and Joseph Newhouse. 1984. "A Controlled Trial of the Effect of a Prepaid Group Practice on Use of Services." *New England Journal of Medicine* 310(23): 1505–1511.
- McLaughlin, Catherine G. 1987. "HMO Growth and Hospital Expenses and Use: A Simultaneous-Equation Approach." *Health Services Research* 22(2): 183–205.
- _____. 1988. "The Effect of HMOs on Overall Hospital Expenses: Is Anything Left after Correcting for Simultaneity and Selectivity?" *Health Services Research* 23(3): 421–441.
- Miller, Robert H., and Harold S. Luft. 1994. "Managed Care Plan Performance since 1980. A Literature Analysis." *Journal of the American Medical Association* 271(19): 1512–1519.

- _____. 1997. "Does Managed Care Lead to Better or Worse Quality of Care?" *Health Affairs* 16(5): 7–25.
- Moy, E., A.J. Mazzaschi, R.J. Levin, D.A. Blake, and P.F. Griner. 1997. "Relationship between National Institutes of Health Research Awards to U.S. Medical Schools and Managed Care Market Penetration." *Journal of the American Medical Association* 278(3): 217–221.
- Newhouse, Joseph P. 1992. "Medical Care Costs: How Much Welfare Loss?" *Journal of Economic Perspectives* 6(3): 3–21.
- Noether, Monica. 1988. "Competition among Hospitals." *Journal of Health Economics* 7(3): 259–284.
- Organisation for Economic Co-operation and Development. 1999. *OECD Health Data 1999: A Comparative Analysis of 29 Countries*. OECD, Paris.
- Polsky, Daniel, Philip Kletke, Gregory Wozniak, and Jose Escarce. 2000. "HMO Penetration and the Geographic Mobility of Practicing Physicians." *Journal of Health Economics* 19(5): 793–809.
- Robinson, James C. 1991. "HMO Market Penetration and Hospital Cost Inflation in California." *Journal of the American Medical Association* 266(19): 2719–2723.
- _____. 1996. "Decline in Hospital Utilization and Cost Inflation under Managed Care in California." *Journal of the American Medical Association* 276(13): 1060–1064.
- Rodgers, Jack, and Karen E. Smith. 1995. *Do Medicare HMOs Reduce Fee-For-Service Costs?* Washington, D.C: Price-Waterhouse LLP, Health Policy Economics Group.
- Smith, D.G. 1997. "The Effects of Preferred Provider Organizations on Health Care Use and Costs." *Inquiry* 34(4): 278–287.
- Ware, John E., Martha S. Bayliss, William H. Rogers, Mark Kosinski, and Alvin R. Tarlov. 1996. "Differences in 4-Year Health Outcomes for Elderly and Poor, Chronically Ill Patients Treated in HMO and Fee-For-Service Systems: Results from the Medical Outcomes Study." *Journal of the American Medical Association* 276(13): 1039–1047.
- Weisbrod, Burton A., and C.L. LaMay. 1999. "Mixed Signals: Public Policy and the Future of Health Care R&D." *Health Affairs* 18(2): 112–125.
- Welch, W. Pete. 1994. "HMO Market Share and Its Effect on Local Medicare Costs." In *HMOs and the Elderly*, Harold S. Luft, ed. Ann Arbor, Michigan: Health Administration Press, pp. 231–249.
- Wickizer, Thomas M., and Paul J. Feldstein. 1995. "The Impact of HMO Competition on Private Health Insurance Premiums, 1985–1992." *Inquiry* 32(3): 241–251.

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