

## **“Catastrophic” health insurance— a misguided prescription?**

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HEN the economy was sound and medical care more affordable, comprehensive national health insurance was a top priority measure on the liberal political agenda. The straitened circumstances and escalated medical costs of recent years, however, have compelled analysts and officials to lower their sights. Seeking something short of national health insurance that would nevertheless insure people against the crippling costs of severe accidents and illnesses and long-term hospitalization, they have hit upon the simple idea of “catastrophic health insurance.” Such coverage, it is believed, would provide Americans appropriate care for unavoidable high-cost illness at a fraction of the cost of any comprehensive care program. But is this the case?

Proposals for catastrophic health insurance characteristically have a simple benefit structure whereby medical expenditures above some annual dollar threshold would be fully paid for all illnesses and conditions. This approach is justified by the assumptions that high-cost illness strikes individuals at random and accounts for a small share of total resources, and that a large portion of its costs cannot be controlled by either the patient or the institution delivering care.

These perceptions are often influenced by first-hand knowledge of a small group of tragic cases. For example, during the 1978

Kennedy hearings on national health insurance, the stories of 68 high-cost users attracted the spotlight. Similarly, personal testimony had a major impact on the Kidney Disease Amendments of 1971, after hearings during which patients were actually dialyzed in front of Congressional committees. However compelling these scenes may be, they simply do not adequately represent what might now be called, and under national health insurance surely would be considered, "catastrophic" illnesses.

Study of the available evidence has convinced us that many common perceptions of the nature of high-cost illness and the characteristics of patients are either too simple or plainly wrong. First, the costs of treating high-cost illness account for a much larger part of all health costs than is generally believed. Second, its characteristics and financial implications vary widely across patient groups. Third, it is more often long-term and repetitive than short-term and acute. Fourth, some costs of care appear to be, in part, controllable with appropriate incentives. This new evidence requires a new and more complex understanding of the nature of medical "catastrophes." On that basis, proposals for insurance should be reformulated to protect people from financial ruin while maintaining incentives to contain the cost of medical care. Comprehensive national health insurance is considered too expensive and as giving the wrong incentives. Catastrophic health insurance will be little better if the nature of high-cost illness is not properly diagnosed and understood.

### **Diagnosing the nature of high-cost illness**

Case-by-case review of patient medical records in selected hospitals in California and Massachusetts have been conducted recently by Zook and Moore, and Schroeder. These studies, together with the work of Birnbaum, provide the principal sources of detailed information on the identity of high-cost patients.<sup>1</sup> They reveal important and sometimes surprising facts about five facets of high-cost illness: its total cost, its typical time span, the role of medical technology, the importance of unexpected medical complications, and the frequency of potentially harmful personal habits among some expensive patients.

<sup>1</sup> Christopher J. Zook and Francis D. Moore, "The High Cost Users of Medical Care," *New England Journal of Medicine*, 302, 1980, pp. 996-1002; Stephen Schroeder, *et al.*, "Frequency and Clinical Description of High Cost Patients in 17 Acute Care Hospitals," *New England Journal of Medicine*, 300, 1979, pp. 1306-1309; and Howard Birnbaum, *Catastrophic Illness in the United States* (Boston: Lexington Press), 1978.

1. *Medical expenditures are highly concentrated.* National medical care expenditures are concentrated in a small fraction of patients. In any given year, about half of the resources in a typical hospital are consumed by only 13 percent of the patients. The most expensive one-fifth of patients accounts for nearly 70 percent of total resources. Since one person in ten is hospitalized each year, this implies that 1.3 percent of the nation's population may account for half of all charges in short-stay hospitals. This skewness is not primarily a function of patient age. Though the aged account for nearly 40 percent of high-cost patients, there is a similar pattern of concentration within each age cohort. (In fact, some of the most expensive patients begin their "careers" at birth with non-lethal congenital abnormalities.)

Of all patients in the five hospitals in the Zook-Moore study, the high-cost 10 percent had direct hospital charges in 1976 averaging \$30,000.<sup>2</sup> All of the high-cost patients had expenses above \$15,000. Inclusion of charges for professional services, outpatient care, home care, drugs, and institutional services would further increase these amounts. Though there was considerable variation across hospitals in the average level of expenses, the distribution of medical resources was highly skewed in every hospital.

Though our data are derived from short-stay hospitals, there is evidence that a substantial additional portion (one study suggests half) of high-cost patients are in nursing homes, special disease hospitals, terminal illness facilities, or mental institutions. Each year, 1.6 million people spend some time in an institution of this sort. Together, they represented a total institutional care budget of over \$17 billion in 1976, implying an average expense per capita of over \$15,000, with some patients consuming many times this quantity of medical resources. Including both long- and short-stay institutions, approximately 2 percent of the United States population accounts for over 60 percent of all hospital and institutional care resources in a given year. If high-cost "institutional" (e.g., chronic domiciliary) users disproportionately overlap with high-cost users of a short-stay hospital, as they surely must, the concentration is even greater.

This significant concentration of medical resources appears to be increasing over time. One study has shown that the average medical expenses for the high-cost 1 percent of persons in the population in a year are growing at a rate that is 5 percent greater

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<sup>2</sup> All figures are inflated to 1980 dollars.

than those of the least costly 25 percent of persons. Thus, the most expensive patients are becoming both absolutely and relatively more expensive to treat.

2. *High-cost illness is seldom a single episode.* Discussion of catastrophic health insurance often depicts patients in intensive care or "brain death" as typical of high-cost illness. In contrast, we find that high-cost illness is most often longitudinal in nature, comprising a series of treatments and hospital episodes over time rather than one medical emergency. In the Zook-Moore study of six populations in five hospitals of varied nature, the highest-cost 10 percent of the illnesses treated in a year were classified into several categories: single cost-intensive illness ("intensive care"), single prolonged hospitalization, repeated hospitalization for the same disease, and combinations of these categories. Repeated hospitalization for the same disease was by far the largest of these groups, accounting for 50 to 90 percent of high-cost patients in the different populations.

A large proportion of high-cost illnesses are not imminently terminal, but rather extend over many months or years. The recidivists in the high-cost group were 15 years younger on average than other high-cost patients with cost-intensive or prolonged hospitalizations and frequently suffered from a degenerative or irreversible long-term illness, such as advanced coronary artery disease or cirrhosis of the liver. Only 12 percent of the recidivists died in the hospital or were judged to be imminently terminal at discharge. The one-year hospital charges of the recidivists averaged \$15,800.

In contrast, half of the patients with single cost-intensive hospitalizations died in the hospital or were judged terminal at discharge. The average cost (excluding physician fees) of this type of stay was \$15,000. Twenty-two percent of patients with a single prolonged hospitalization died or were terminally ill, and the average cost of their stay was \$18,700. Previous studies of intensive care have shown even higher in-hospital fatality rates and expenses. There is no doubt that these illnesses have a tremendous financial impact on the hospital and they have understandably drawn a great deal of public attention. However, neither intensive care nor prolonged hospitalization was the most frequent type of high-cost utilization over periods of a year or longer, that distinction belonging to patients who underwent repeated hospitalizations for the same disease.

3. *Medical technology is not the primary source of rising costs.*

Technological advances are often thought to be the principal cause of the high costs of individual "catastrophic" illnesses. (Coronary artery bypass grafting, kidney dialysis, and hyperalimentation are commonly cited examples.) Yet there is evidence to suggest that high daily hospital charges and high costs per illness typically reflect the use of a large total volume of standard resources—often fairly simple—rather than the application of a new technology.

Among the high-cost patients in the Zook-Moore study, a major procedure or treatment seldom accounted for a large share of total costs. Only 1 percent of this group had a cardiac pacemaker, 4 percent had a recent coronary artery bypass graft, 6 percent were on dialysis, 1 percent had open heart surgery, less than 1 percent required hyperalimentation, 2 percent required radiotherapy, and 2 percent required care in a neonatal intensive-care unit. (Since two of the hospitals studied had large kidney disease services, the incidence of dialysis may be higher than in the population overall.) These figures resemble the results of a study of 17 California hospitals which concluded that high-cost patients differed from their low-cost counterparts more in the amount than in the kind of care received.

Therefore, for high-cost patients (as for others) most days spent in the hospital do not include major tests or procedures, let alone intensive care. Though high-cost patients have more complex days somewhat more often than low-cost patients, the difference was much less than one might expect. The Zook-Moore study classified hospital days into four categories, depending upon their complexity. Briefly, the categories were: (1) routine dwelling days; (2) days of minor testing, blood work, physician consultation, and special intravenous medications; (3) days of major diagnostic testing, minor operations, or special precautions; and (4) intensive care, operations over three hours, emergency admission for major trauma, or life-support services. So-called "intensive care" days were more than twice as common for high-cost patients than for other patients, but they still accounted for only one day in eight for this highest-cost category. Routine dwelling days represented a quarter of the time spent in the hospital by the highest-cost group as compared to 40 percent of the time spent by the lowest-cost group. Thus, for many high-cost illnesses, treatment does not consist predominantly of intensive bursts of the most high-technology care. Patients suffering from alcoholism, diabetes, obesity, certain neurological disorders (e.g., multiple sclerosis), mental disease and stroke, for instance, incur high costs primarily by consuming large

quantities of hospital days and many hours of professional services. They may never reach the operating room, nor be assessed by a CAT scanner.

4. *Complications during treatment raise costs.* Hospitals are complex institutions where hundreds of difficult judgments are made, orders are interpreted, and technical procedures are undertaken every hour. In such an intricate environment, many forms of accident, error, and unforeseen health events may arise to prolong or increase the costs of treatment. Some complications during treatment are simply bad outcomes of well-informed gambles (prosthesis failure or digitalis toxicity in heart disease); some are natural but unforeseen progressions of disease; others may be due to misapplication of diagnostic equipment; some are drug reactions; others are due to infections acquired in the hospital; still others are due to errors by physicians and other care providers. In any case, unexpected complications during treatment are an important cause of high-cost illness.

Unexpected complications, which other studies have shown to strike one patient in five, are most common among high-cost patients—both per day and per hospitalization. The Zook-Moore study identified 22 forms of unexpected complication during hospitalization in the five hospital populations. On average, 1.8 such events occurred during each cost-intensive hospitalization, 1.3 during each prolonged hospitalization, and 3.2 during stays that were both prolonged and cost-intensive, but only .2 in other types of hospitalization. By virtue of their illness, high-cost patients seem particularly susceptible to medical complications which further raise costs.

5. *Harmful habits lead to high costs.* Persons with a potentially harmful habit are hospitalized substantially more than are others. (This is not to imply inevitable causality. In any particular case, the condition requiring hospitalization may have developed independently of a harmful habit.) The high prevalence of alcoholism among patients in general hospitals illustrates the link between habits and hospital costs. Though 4 to 5 percent of the overall adult population is alcoholic, it has been estimated that 9 to 14 percent of the general hospital population (15 to 29 percent of males in that group) is alcoholic. Our data confirm these high levels of alcoholism in the general hospital population and the overwhelming recidivist tendencies of these patients. When hospitalized, patients with unhealthy habits like alcoholism are more expensive to treat and become high-cost patients. In the Zook-Moore study, poten-

tially harmful habits were noted in the records of high-cost patients more than 40 percent more often than in the records of other patients.

The picture of high-cost illness that emerges from consideration of the factors discussed above is not entirely consistent with the "catastrophic" stereotype of life maintenance in intensive care, problems of when to declare brain death, or advanced high-technology treatment. Rather, high-cost illness is usually long term and often mundane or recurrent, embodying costs due, in part, to unexpected complications during treatment or to persistent unhealthy personal habits. Though random medical tragedies are an important component of the high-cost patient group, they are isolated elements representing only a small part of the picture. Unfortunately, proposals for catastrophic health insurance are based primarily on this rather simple notion of the source of high medical costs.

### **Problems with the current plans**

From this profile of the high-cost users of medical care emerge three important considerations for the design of health insurance programs. First, high-cost illnesses differ widely in terms of clinical options, controllability of resource utilization, and predictability (the repeaters). Insurance schemes should reflect those differences. Identical insurance structures for the very different illnesses described above may make no more sense than identical plans for fire and life insurance. In fact, the potential for identifying chronic repeaters suggests a form of prospective reimbursement to a specialist institution (e.g., in spinal cord injury) for some patients.

Second, the data suggest that "catastrophic health insurance" is unlikely to be as economical as is often asserted. In fact, the high-cost 10 percent of patients accounted for 40 to 50 percent of hospital charges in one year and cost over \$13,700 apiece. Methods are still needed to instill cost efficiencies while insuring against genuine cases of financial hardship.

Third, some utilization by the high-cost users may be more "optional" or elastic than is generally thought; this possibility is suggested by the surprising prominence of harmful habits, of treatment complications, of "routine," low-intensity care, and of repeated hospitalization (as opposed to emergency intensive care).

These three themes—marked patient differences, surprisingly high costs (often predictable over several years), and the potential for controllability of some cost components—put current proposals for

health insurance in a new light and point towards new and more workable policy approaches to health insurance.

The front-running alternatives for national health insurance are built upon the premise of relieving the financial burden of high-cost illness for all Americans. The Catastrophic Health Insurance Bill that has received tentative approval from the Senate Finance Committee, employing what is called the Long-Dole approach, provides federal payment of all medical expense for a person beyond a \$3,500 annual threshold. (The threshold is lower for poor people.) Consumer Choice Health Plan, a leading pro-competitive option put forward by Alain Enthoven, would require any private plan approved for federal support to include "catastrophic coverage." Major-risk health insurance is also central to a plan put forth in *The Public Interest* in 1971 by Martin Feldstein. This scheme would use public loans to patients as well as co-insurance and deductibles to hold down costs from "first dollar" coverage while relieving some of the fiscal burden imposed on the individual by high-cost illness. Proposals by Senator Edward Kennedy for a comprehensive national health insurance plan under the Health Care for All Americans Act were presented in a series of 1978 hearings where experiences of patients with high-cost illness dominated the testimony. The Carter Administration proposal, National Health Plan, also included retrospective payment for high-cost illness, with uniform reimbursement provisions across all providers and diagnoses.

The findings described above suggest that major improvements are needed in the catastrophic coverage provisions of these plans. Though few proposals contain incentives for providers to develop long-term care programs to reduce readmissions, repeated hospitalization for the same disease is the most frequent utilization mode defining high-cost illness. In addition, no plan contains incentive provisions to reduce the frequency of potentially harmful habits, such as higher premiums for the heavy smoker, the obese overeater, or the noncomplying clinic "no-show." No plan considers how patients at high risk of complication may reach the most efficient providers. Patient profiles are very different, but no plan considers how we can overcome repeated treatment failures in hospitals, an important source of high medical costs and poor medical outcomes.

High-cost illnesses for the most part are not random "bolts from the blue," yet many proposals for catastrophic health insurance are based on this misconception. They fail to confront key cost components of high-cost illness and neglect important differences across categories of patients.



There is no reason why insurance plans cannot address separately the different segments of high-cost users, identified above, in more carefully tailored ways. The terminal cancer patient, the non-complying diabetic, the repeatedly hospitalized alcoholic, the paraplegic, and the elderly widow with severe peripheral vascular disease are similar in their status as high-cost users of medical care, but dramatically different in their care requirements, their financial needs, and the lower-cost treatment alternatives that are available. Health insurance proposals should and can take these differences into account if they are to meet the patients' needs within reasonable costs. Since catastrophic health insurance, as embodied in present proposals, does not recognize differences it is unlikely to be inexpensive or fully equitable, nor will it offer a "quick fix" to the most pressing health problems.

For example, the Long-Dole bill features full federal reimbursement for in-patient, post-hospital, physician, and home health services after a deductible (\$3,500 in the present version) is exceeded during a calendar year. Payments would be open-ended and determined retrospectively on the basis of hospital charges. Such a plan unfortunately perpetuates the sort of program design that has raised current health costs to such a high level. By tempting hospitals to get the patient's bill up to \$3,500 whenever possible (to reach a range in which there is full federal payment) it may exert a further inflationary impact on medical costs.

Financial rewards or penalties applied at the appropriate leverage point can greatly affect the behavior of patients, doctors, and hospitals, and could reduce total costs. One recent study of California Medicaid experience, for instance, found that the institution of a one-dollar charge per physician office visit decreased demand for those visits and increased demand for hospital services (which remained "free" to the consumer). Patterns of charges and payments have also been shown to be influential for dental care and other out-patient services. When the dollar amounts are large, both consumer and provider behavior may be modified dramatically. The treatment of kidney disease provides a particularly graphic example. Federal legislation enacted in 1972 provided 100 percent coverage for dialysis treatment and associated physicians' fees. This discouraged kidney transplantation, and favored dialysis in centers over dialysis at home. In the next five years, private firms steadily entered the market for dialysis services. As a result, by 1978, 37,000 patients were being dialyzed—up from roughly 10,000 in 1974—with a 50 percent increase in this number predicted by the mid-1980's.

Moreover, the share of patients on home dialysis declined from 40 percent to 13 percent in the 1972-1976 period. In cases such as renal dialysis, where there are therapeutically-competitive alternatives, financial and service-support incentives to employ lower-cost methods are especially promising.

By misunderstanding the nature of high-cost illness, the one-year deductible proposed by catastrophic insurance plans is terribly inequitable. Approximately 20 percent of all patients in the Zook-Moore study had been hospitalized at least four times in the previous five years for the same disease; many had recurrent illnesses over much longer periods. A longer-term benefit structure could reflect more adequately the extremely high year-after-year costs of illnesses such as vascular disease, certain congenital defects, some cancers, cirrhosis of the liver, intractable anemia, diabetes, or major stroke. It is possible to account for costs over a series of years, with appropriately tailored co-insurance and deductible provisions. The single, short, cost-intensive episode, so well covered by a one-year, open-ended insurance plan, is neither the most frequent type of high-cost illness, the most socially disruptive or financially ruinous, nor the case that needs greatest societal attention. A newborn with certain congenital anomalies might never "qualify" in one year, yet from birth to age 15 might require 10-20 hospital admissions. This would have a greater long-term impact on the family budget than would most serious accidents or severe burn incidents, misfortunes which would be adequately covered under current proposals for catastrophic insurance coverage.

A reassessment of high-cost illness also makes it clear that catastrophic plans seldom give appropriate incentives to hospitals and insurers to control costs. Insurance provisions that pay for all patients' expenses once they exceed a threshold (e.g., \$3,500) will affect the way that hospitals decide to price their services. In fact, it may become advantageous to hospitals to reverse the present practice of subsidizing high-cost days by low-cost days and to charge higher prices for intensive care and complex forms of care. This would make the expensive appear even more expensive and would also magnify the total bill for high-cost illness. Open-ended reimbursement after a one-year deductible also gives providers and insurers little financial incentive to develop preventive programs or long-term management services. Major-risk insurance as now conceived will be able to forestall financial ruin for a small percentage of patients, but will do little to promote a more cost-effective organization of medical treatment which would benefit everyone.

### Considering new remedies

Recent surveys of high-cost patients allow a more sophisticated understanding of the potential impact of catastrophic health insurance. We have found that high-cost illnesses differ widely but are mainly concentrated among a small number of long-term patients, that insurance will not be as economical as some have imagined, and that some components of high costs can be controlled. Our assessment suggests several improvements for catastrophic health insurance.

1. *Different groups need different plans.* Study of the high-cost users revealed several categories of patient, each with different needs, treatment alternatives, and behaviors. For instance, nearly 50 percent of childhood high-cost illnesses were traceable to a congenital defect; about 40 percent of the high-cost adult users had a potentially harmful habit noted in the record; over 20 percent of high-cost users were over 70 years of age; and nearly 10 percent had cancer. Patients defined by clinical parameters such as these would have very different incentives to use medical services. Just as physicians would counsel these groups differently as to their care, insurance plans should guide them differently into the most appropriate pattern of health services utilization.

Alcoholism and mental disease were both important among high-cost patients. In the institutions studied, these patients were confined to the hospital for many days. A much lower-intensity setting (i.e., not a hospital), if reimbursed in appropriate fashion, might prove to be equally effective and less costly. The treatment of diabetes mellitus provides another example of the possibility of developing a more cost-effective approach to a single diagnosis. One study at Stanford has shown that appropriate education and substitution of ambulatory services can reduce re-admissions of diabetics by as much as 56 percent. This approach has apparently succeeded in reducing costs while maintaining or increasing quality of care.

There are currently few financial incentives in the insurance plans to employ the most cost-effective modes of care for these illnesses. By insuring against hospitalization—the highest-cost setting—we lower its relative cost and make it a more attractive mode of care to the patient. Proposals for undifferentiated catastrophic illness coverage could worsen this problem. Distinctive modes of reimbursement for particular high-cost use groups, by contrast, may foster the growth of geographically clustered services for similar diagnoses, thereby making possible significant economies of scale.

Attempts to regionalize heart surgery have demonstrated large potential economies. One study found that unit costs were related strongly to the number of procedures done per year, suggesting large savings may be realized through "learning by doing." Another study estimated that if 50 operations were performed a year, the cost per patient would be \$21,500, but with a tenfold increase in scale, the cost per patient would drop to \$8,700.

2. *Prospective reimbursement can control costs.* A shift from current patterns of reimbursement for providers also offers possibilities for considerable savings. Control over the costs of care is possible only when the provider or patient is a primary decision maker and has a direct stake in the conservation of scarce medical resources. Under cost-based reimbursement after the fact, neither consumer nor provider has an incentive to control cost in a single episode or to foster the most cost-effective modes of long-term care (e.g., early use of ambulatory services to forestall the need for later emergency hospital admission).

Planning for long-term care is especially important, since almost two-thirds of the high-cost 20 percent of patients in our study experienced repeated hospitalization for the same disease (often predictable) in a single year, and many repeat visits in earlier (and later) years. Early interventions to lower the probability of future hospitalizations could provide major cost savings. For example, giving known hypertensives effective rewards for compliance and careful follow-up after screening can reduce later rates of hospitalization. The medical care system has an important opportunity to design similar cost-effective programs for other illnesses.

One way to provide incentives for cost-effective care of the high-cost patient group might be through "prospective reimbursement." Under such a system, certain institutions would be promised a predetermined annual payment to assume responsibility for the care of a patient with a long-term, high-cost illness. (Short-term illnesses with potentially high-cost consequences could be handled differently.) The magnitude of the payment would depend on the illness diagnosed, and might change over time for a given patient. A spinal cord injury center, for example, might be granted a fixed payment on the first of the year for each paraplegic whose care it assumed. Appropriate medical centers would be given similar payments for each child with cystic fibrosis, hemophilia, or other severe, predictable and repetitive illness. The same approach (perhaps with additional categorization of patient condition) could be undertaken for mental disease, renal failure, or even alcoholism.

The value of this system is that the health care provider assumes responsibility for costs above the expected level. At the same time, if costs can be held below the expected level, the provider retains the cost savings. Thus incentives to conserve resources are built into a system which at the same time guarantees the provider a level of reimbursement that, across the range of patients treated, should adequately cover the costs of appropriate care. Such a program would shift responsibility for designing and implementing cost reductions from the regulators of medical care to its deliverers. Physicians would retain control over detailed clinical decisions. This is in contrast to command and control methods of cost containment imposed by outside public agencies, which operate through regulation of capital investment and, in some cases, as with Professional Standards Review Organizations, with assessments of patient care on a case-by-case basis. Widespread prospective reimbursement would probably also give rise to new forms of provider organizations, and group practices specializing in certain types of patients or illnesses. Their success would depend on their ability to deliver care less expensively than do existing institutions.

Quality assurance must be a continuing concern in any system for financing medical care. For certain classes of high-cost users this problem might be particularly acute. Strong, readily implementable sanctions should be available to maintain acceptable quality of care, thereby avoiding the exploitation of possibly helpless groups such as the mentally ill, the senile, and the very sick. Financial penalties for inadequate care might well be linked directly to the reimbursement system. Because of the cost-quality tradeoff, there is also a danger in placing unduly strong cost-reducing incentives on physicians. The objective should be to create a climate or ethos of cost reduction, and of more fervent inquiry into "how much is enough." This sort of indirect encouragement to improve performance is often cited as a principal benefit of profit-sharing plans for workers in private companies. Something similar could perhaps be achieved in health services. (The proponents of health maintenance organizations claim that it already has been.)

The most important feature of prospective reimbursement in the context of the high-cost users is that it provides a strong incentive to deliver health care on a cost-effective basis over the long term. Attention to costs on an episode-by-episode basis is hardly sufficient (it may even be counterproductive in circumstances where rehabilitation or prevention is a possibility), especially when all the evidence suggests that those who use medical resources most ex-

tensively utilize them on a continuing basis over a period of years.

3. *There must be incentives for prevention.* We have seen that high-cost users are more likely than other patients to have potentially unhealthy habits. Persons with a documented adverse lifestyle were found to be more often in the hospital, more costly to treat per illness, and more repetitive in hospital utilization than others. Any public program to finance care of high-cost illness must inevitably confront this problem. Given the interdependence created by any system of health insurance, if individuals are to have sufficient incentive to take care of themselves—to reduce their levels of risk and thereby their expected medical expense—they must be "penalized" in some way for engaging in unhealthy behavior.

There have been relatively few documented attempts made on a significant scale to modify risk factors. Where the attempt has been made it has often met with success, especially in reducing risk factors related to coronary disease: smoking, obesity, and certain dietary habits. The Stanford Heart Disease Project, for instance, sponsored a highly successful voluntary campaign of education and counseling for those most at risk in three California communities. National trends also show that risk factors can be modified and that they can make a difference in personal health. The rate of coronary death in the population for males aged 45 to 54 has declined by 20 percent since 1970, possibly due to improvements in smoking habits and diet within this group. The North Karelia project in Finland also focused on providing information and counseling with regard to cardiovascular risk factors. In four years it achieved substantial reductions in smoking, cholesterol levels, blood pressure, and hypertensive drug noncompliance rates at a modest cost.

Programs in the workplace have also shown some success. In fact, 30 percent of major United States companies now conduct some form of non-smoking program, and 3 percent of these businesses pay their employees not to smoke. Though few reliable statistics are available at present, early results suggest that even small rewards for, or assistance in, smoking or weight reduction can affect behavior and health outcomes. If voluntary community campaigns and relatively small programs in the workplace can reduce unhealthy behaviors, it seems likely that more vigorous approaches, including direct financial incentives for low risk-factor levels, may do even better.

The prevalence of potentially harmful habits noted in the medical records examined by the Zook-Moore study underscores the potential importance of preventive measures, promoted in part by

educational programs, but encouraged strongly by insurance-plan design. Thus a high-cost patient who fails to control the habit of alcoholism or smoking might be required to pay a higher premium until his physician testifies the problem has been solved. The incentive need not be applied at the time of the high-cost illness. The fearful lifestyle consequences of many high-cost illnesses are a far more powerful deterrent to risk-taking behavior than the possibility of high medical costs. Charging after the illness sets in offers little in the way of additional incentive, yet subjects a class of individuals to a significant financial risk, assuming that only a small fraction of people with bad habits get "caught." Moreover, in many instances, it might prove infeasible to charge after the high-cost illness has set in. If we wish to charge individuals for taking increased risks of incurring high-cost illness, and sensible policy would suggest that we should, the most propitious time to do so is while they are taking the risk, before they enter the high-cost user statistics. Severe penalties for speeding and substantial taxes on cigarettes are more appropriate, and probably more feasible, than an actuarially based charge on paraplegics and lung cancer victims for their illnesses.

Problems that could yield to preventive measures are found in their most extreme forms in the most costly illnesses. This is the finding that most forcefully dispels the common misperception of high-cost illness as a random catastrophe. At a minimum, any major-risk health insurance plan should consider: (1) greater taxation of tobacco (perhaps at varying rates dependent on the characteristics of the cigarette) and alcohol, with the proceeds helping to finance the insurance program, (2) insurance premium incentives to lose weight, to stop smoking and drinking, and to adhere to medical regimens, (3) development of new approaches to chronic repeaters especially those with lifestyle-disease involvements, (4) incentives to channel certain categories of patients to hospitals where rates of unexpected complications for their particular problem are lower, and (5) more widespread use of successful community education programs such as the Stanford Heart Project.

### **Treating the "high-cost" users**

While discussions of catastrophic illness conjure up images of unforeseen accidents and disease, insurance proposals currently before Congress would really cover all forms of very expensive medical care. Relief for its citizens from the financial burden of high-cost

illness is a noble and sound goal for any society, and there is little doubt that high-cost patients often need and merit financial assistance and large quantities of medical resources. Many of the tragedies that befall the high-cost users are precisely the types of events for which organized insurance can provide its greatest benefits. But there are numerous ways to insure and many ways to aid those in need. If high-cost illness in all its forms is really the concern, Congress and the new Administration must understand the nature of the problem, its causes, and the treatments to which it might yield. Any program to cover high-cost illness should not only achieve the primary function of insurance (the spreading of risk), but should also build incentives into the health-care system for the most competent care by doctors, adherence to life-preserving lifestyles by patients, and cost-effectiveness by those who provide care.

Major mistakes are not uncommon in health-care programs partly because the health-care system works in mysterious ways. A broad-based insurance program to cover high-cost illness should not be mandated until we develop a deeper understanding of the problem. Observing its responses to policies in place can often change our conceptions dramatically, and convince us that quite different policies would be desirable. For instance, the "doctor shortage" of ten years ago is seen now, by many, as a "doctor surplus." Actions are now being taken to reverse this trend. Hospital reimbursement provides another example. During the 1970's the state of New York penalized hospitals financially for excess bed capacity. Yet it was recently decided that this did not hold down costs and that payment incentives will now need to be given to hospitals to encourage empty beds, precisely the opposite policy.

Reversal is likely to prove much more difficult, however desirable in concept, where coverage for high-cost illness is concerned. Entitlements are always difficult to reduce, especially when the target group appeals to our sympathies. Moreover, health-care delivery institutions adapt themselves to any new reimbursement mechanism and tend to become dependent upon it. Should policy in this area prove to be more expensive than estimated, or merely poorly designed, we might repent at leisure.