Medicare Benefits: A Reassessment

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CLOSE BEHIND THE CRISIS OVER THE FINANCING OF the Social Security system has arisen a similar concern about the fiscal solvency of the Medicare program. The past several years particularly have witnessed a serious erosion of the Medicare trust funds, brought about by sustained high rates of increase in benefit payments that have not been matched by increases in revenues paid into the Medicare system. Increased benefit payments have resulted mostly from the rapid rise in the costs of covered medical services, rather than the expansion of the number of benefits. The outcome of these trends, according to the Congressional Budget Office (1983), will be a deficit in the Hospital Insurance trust fund, one of the two funds that finance Medicare. The Congressional Budget Office projects that the deficit could occur as early as 1987 and that the annual deficit in year 1990 could be $17 billion, increasing to $61 billion in 1995.

This projected deficit has already prompted the Congress to focus attention on the Medicare program. Three general approaches to solving Medicare's financial problems are likely to be considered: stricter controls on payments to providers of service (the supply-side approach); more stringent financial requirements for Medicare beneficiaries (the

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demand-side approach); and, an increase in revenues through higher taxes, increased premium payments, or increased allocation of general revenue funds to Medicare. Additional approaches, such as reducing the number of covered services or limiting the conditions for Medicare eligibility, are not considered likely options. With the projected annual deficit of $200 billion in the federal budget, the amount of additional federal resources that might be allocated to Medicare is severely limited. The eventual solution, therefore, would likely involve a combination of the three approaches. The debate about the various options presents an excellent opportunity to reexamine Medicare's structure and to consider some fundamental reforms.

Medicare was legislated almost twenty years ago. Rapid changes occurred during the intervening years in the number of beneficiaries and in the health care they receive. There have been dramatic changes especially in the health care delivery system; numbers of physicians per capita have increased greatly, and access to health services has improved considerably; developments in medical technology have accelerated; health maintenance organizations (HMOs) have spread; and for-profit firms are playing a greater role. Consequently, the anticipated crisis in Medicare financing can be viewed as a stimulus to restructure the program, in light of our increased knowledge, for a changed environment.

This paper focuses on the demand-side approaches, addressing the options for restructuring beneficiaries' financial participation in the program. Such a restructuring should serve three purposes: to improve the efficiency of the health care system; to correct the flaws of the current benefits; and to reduce the anticipated deficit. We view changes in the cost-sharing provisions of the Medicare program to be an important component of any overall policy changes that are made to solve the program's fiscal problems. But such changes should only be part of a multi-faceted strategy.

The Current Program Benefit Structure and Cost-sharing Provisions

The Medicare program is designed to finance acute medical care, mainly for elderly Americans. The program is divided into two parts: Hospital Insurance (HI) and Supplementary Medical Insurance (SMI).

The HI component covers short-term hospitalization, skilled nursing care, and home health services, while the SMI portion covers physicians' services, outpatient hospital care and laboratory fees, as well as home health care. The program does not cover long-term nursing home care, dental care, or outpatient drugs.

Cost-sharing is now imposed on Medicare beneficiaries who use medical services. Under HI, a deductible amount approximately equal to the cost of one day in a hospital ($356 in 1984) must be paid by beneficiaries who are hospitalized. Apart from this deductible, the HI program pays in full the cost of the first 60 days of hospitalization for an episode of illness. From the 61st through the 90th days, a 25 percent copayment of $89 per day (again, as of 1984) is required. Beyond the 90th day, each beneficiary has a life-time reserve of 60 additional days but is assessed $178 for each day that is used.

HI also covers up to 100 post-hospital days in a skilled nursing facility (SNF). After 20 days, the beneficiary is required to pay an amount per day that is.equal to 12.5 percent of the inpatient hospital deductible ($44.50 in 1984).

Under SMI, beneficiaries are responsible for an annual deductible of $75, beyond which Medicare pays 80 percent of the "reasonable charges" for covered services. If the provider's charges are reasonable according to Medicare standards, then the patient's share will be 20 percent of the total. If they exceed such standards, however, the beneficiary is liable for the excess amount in addition to his or her 20 percent share (except when the physician accepts assignment).

State Medicaid programs frequently serve to complement Medicare for the poorest elderly. Medicaid may finance cost-sharing amounts, as well as other noncovered services, for eligible Medicare beneficiaries who are too poor to pay these bills.

Arguments for and against Cost-sharing

Patient cost-sharing, the direct payment by consumers of some portion of the costs of medical care at the time of use, has been a topic of controversy throughout the long debate on insuring medical services. As the inflation in medical costs continues, observers have become increasingly pessimistic about the likely success of efforts to control hospital and physician costs. Attention has turned to the demand

side, and to the potential benefits of cost-sharing. Cost-sharing promises economy; numerous empirical studies have found that cost-sharing encourages reductions in the excessive use of covered medical services and diminishes the need for external regulation (Conrad and Marmor 1980).

Arguments for

Several specific arguments justified the design of Medicare's cost-sharing provisions. First, cost-sharing reduces the cost of the program to the government. Because the program must be financed through taxes or other revenues, one that is without cost-sharing provisions would require increased taxes or a reduction in funds available for other federal programs. The use of cost-sharing thus permits Medicare to cover a broader range of services than would otherwise be possible.

Second, cost-sharing makes the consumer cost-conscious, discouraging the unnecessary use of services. Deductibles and coinsurance provide patients and physicians with an incentive to choose the most cost-effective forms of care. Without cost-sharing, the burden of monitoring the appropriateness of care must be borne entirely by regulatory agencies. As discussed in the next section, considerable evidence has been accumulated that demonstrates that the presence of cost-sharing has a substantial effect on patients' overall demand for services as well as the mixture of services obtained. Cost-sharing is increasingly recognized as an effective means of reducing inflation and providing incentives for the appropriate use of resources.

Discussions about the effect of cost-sharing on demand for health services assume that patients initiate demand or that physicians act as their perfect agents. In fact, we do not know how well the agency relationship operates. As described later in this section, it has been argued that physicians are affected only indirectly by the cost-sharing requirements of their patients and, consequently, that cost-sharing may not affect demand. However, it can also be argued that these indirect effects are sufficient to alter physicians' behavior as well as that of their patients. Physicians are generally aware of the financial implications of their decisions for their patients and may well take that information into account in developing treatment protocols. However, the empirical studies of the effects of cost-sharing on demand, reviewed in the next section, have measured the total effects of cost-

sharing, without regard to whether that demand was patient- or physician-initiated.

Related to this is the potential effect of cost-sharing on the medical care market. Theory suggests that cost-sharing should induce patients to shop for the least expensive providers who can deliver services of acceptable quality at minimum cost. When patients shop for the least costly providers, competitive market pressures are generated among those providers. The lower cost, presumably more efficient providers would attract more patients, while the higher cost, presumably less efficient providers would lose patients. Market pressures would, therefore, force the high-cost providers to improve the efficiency with which they deliver medical services.

Finally, the high deductible incorporated in the HI program is intended to encourage patients to seek outpatient treatment instead of inpatient hospital care. This assumes, of course, that time, ability, and illness permit such search, and that once sought, the more efficient type of care can be obtained. The deductible is also intended to deter unnecessary use of skilled nursing facilities. Because elderly people are most likely to suffer from chronic illness, there may be a tendency to admit them into skilled nursing facilities (SNFs) when custodial care is all that is needed. To reduce the inappropriate use of SNFs, a three-day hospitalization is required before a beneficiary becomes eligible for SNF benefits.

Arguments against

In response to these arguments in favor of cost-sharing, critics have pointed out that cost-sharing may well deter utilization, but in doing so it may discourage patients from obtaining necessary services. The deterrent effects on utilization could adversely affect patients' health and reduce the quality of care they receive. As a result of cost-sharing, patients may delay treatment until an illness becomes so severe that the total cost of treatment is higher than it would have been if prompt treatment had been sought. Similarly, physicians may withhold necessary tests which would have correctly diagnosed the disease in time to treat it effectively.

Some argue that patients have insufficient knowledge to make rational calculations of the benefits and costs of their treatment choices. Moreover, patients seldom know in advance what treatment will be prescribed

and thus cannot predetermine its cost. Physicians, who presumably possess more information, are themselves far from agreed on the efficacy or efficiency of many treatments. Furthermore, they are only indirectly affected by the price facing their patients. As a result of these considerations, it is argued, cost-sharing would not generate sufficient competitive pressure in the marketplace to promote efficiency.

Another major criticism of cost-sharing relates to equity. A uniform deductible or coinsurance rate places a greater burden on the poor than on high-income families. On the other hand, if the cost-sharing is related to family income levels, program administration would become more complicated and costly.

Finally, the critics argue that, in the presence of cost-sharing, individuals will purchase supplementary insurance to reduce their out-of-pocket medical expenses. This could mitigate any effects on the demand for services that cost-sharing may bring about. For Medicare beneficiaries, private insurers have offered "medigap" policies. They are designed to cover the "gaps" in Medicare coverage, such as the deductible and coinsurance amounts and uncovered hospital days. Medigap policies have been purchased by a sizable proportion of Medicare eligibles, which demonstrates that the Medicare population prefers first-dollar and/or catastrophe coverage.

Regulating Consumer Behavior in the Presence of Insurance: A Review of the Empirical Studies

The availability of health insurance through Medicare would be expected to increase beneficiaries' demand for medical services. Because Medicare provides broad coverage of hospital care and physicians' services, participants in the program are made to feel better off for having this "insurance policy." This results in two effects: so-called "moral hazard," and a price effect. Moral hazard relates to specific behavioral responses to the incentives created by insurance coverage. Because of the availability of insurance, people may not alter aspects of their lifestyles that will adversely affect their health, in the knowledge that they would be cared for if they became ill. For example, smokers with health insurance have less financial incentive to give up smoking than those without.

Related to this, Medicare causes medical care prices to seem lower

than the actual value of the resources employed. This so-called "price effect" will also provide a motivation for Medicare beneficiaries to obtain more services than they would if they had to pay the full cost. The price effect would not be very important if the consumption of medical services were determined only by medical need. The influence of economic factors, such as insurance coverage, on utilization levels, however, has been well documented (Phelps and Newhouse 1974).

A number of empirical studies have attempted to evaluate the quantitative effect of cost-sharing on the utilization of health services. Doing so is normally difficult, due to the usual absence of a suitable control population. Among the researchers who have been able to identify an appropriate control group are Scitovsky and Snyder (1972), Phelps and Newhouse (1972), Enterline et al. (1973), Beck (1974), Roemer et al. (1975), Scitovsky and McCall (1977), and, most recently, Newhouse et al. (1981).

The evidence strongly indicates that coinsurance significantly affects consumers' use of health services. The general conclusion has been that the more consumers must pay out of their own pockets, the fewer services—particularly outpatient physicians' services—they will demand. For example, Scitovsky and Snyder (1972) examined the utilization patterns of the subscribers to a medical plan before and after a 25 percent coinsurance provision was instituted. They determined that physician services per subscriber fell by 24 percent after the coinsurance provisions took effect. Phelps and Newhouse (1972) analyzed the same data and concluded that the decline in physician visits amounted to 1.37 per person per year after other subscriber characteristics had been taken into account. In a follow-up study, Scitovsky and McCall (1977) determined that the lower use rates registered soon after the coinsurance took effect were maintained during subsequent years, indicating that the earlier changes had not been a short-term phenomenon.

Several other studies have assessed the effects of changes in the cost-sharing provisions of government medical care programs. Two of these studies are Canadian. Enterline et al. (1973) studied the effects of providing free medical care in the Province of Quebec, which was begun in 1970. They found that per capita physician visits remained constant, but that the distribution of persons receiving services shifted markedly to lower income groups. Accompanying these shifts was an increase in the percentage of selected conditions for which people

consulted a doctor, a near doubling of the waiting time for a doctor's appointment, and an increase in waiting time in the doctor's office. Beck (1974) evaluated the introduction of copayment in Saskatchewan in 1968, as it affected poor families. He found that the copayments of $1.50 for physician office visits and $2.00 for home, emergency, and hospital outpatient visits reduced the use of physicians' services by the poor by 18 percent. This was substantially greater than the estimated 6 to 7 percent reduction by the general population, although the author could not determine for either group how much of the reduction was attributable to declines in unnecessary care. Finally, Roemer et al. (1975) examined the effects of a copayment experiment involving Medicaid beneficiaries in California. They found that, at first, utilization of ambulatory physician visits declined when copayments were introduced. Later, however, hospitalization rates rose, which they interpreted as evidence of neglect of early medical care resulting from the institution of copayments.

The most recent, and most able to be generalized, research on the subject of copayments is that reported by Newhouse et al. (1981). Data for this assessment were drawn from a controlled trial of alternative health insurance coverages. The coverages varied widely in their coinsurance provisions, which ranged from no coinsurance (that is, free care) to 95 percent coinsurance. The latter type of coverage resembled a "catastrophic" health insurance policy. Coinsurance provisions were coupled with limits on the total expenditures for which a family would be liable. The limits were generally related to family income.

A number of important findings grew out of the Newhouse et al. study. Overall, the authors found that per capita expenditures for inpatient and ambulatory services rose steadily as coinsurance decreased. Persons receiving free care incurred expenditures that were about 60 percent higher than those for people with "catastrophic" coverage. Newhouse et al. found no evidence to support Roemer et al.'s (1975) conclusion that high-deductible plans are ultimately more costly because they encourage neglect of illnesses and consequently result in higher hospitalization rates. In fact, they found that the probability of hospitalization was highest for persons receiving free care. Finally, they concluded that the poor were not *disproportionately* affected by cost-sharing, though they would have been had the cost-sharing not been related to family income.

Although the above-referenced studies do not specifically address effects on the elderly, experience under the Medicare program itself provides clear evidence of the price effects on that population. Before Medicare was enacted, only about one-third of the elderly had health insurance coverage. Those who were uninsured faced financial hardship when serious illness struck, and many elderly had to rely on charity care. Undoubtedly, a number of uninsured elderly delayed seeking necessary medical treatment. When Medicare took effect, the average utilization rate among the eligible population increased immediately, by more than 30 percent. The average number of physician visits per elderly person increased by more than 40 percent. These higher utilization rates have been maintained during subsequent years.

The empirical literature, as we have noted, supports a definitive conclusion that the more medical care is covered by insurance, the more services will be used and, conversely, the greater the proportion of costs patients must assume, the fewer services they will seek. Studies have shown not only that the imposition of cost-sharing reduces utilization, but that these reductions differ according to the share of total costs that patients must pay. These patterns appear to apply to ambulatory care—and especially to physician visits—more than hospitalization, though the two are related. Unfortunately, no strong evidence (apart from the Medicare experience) exists on responses by the elderly to changes in cost-sharing requirements. It is also unclear how the observed patterns should be interpreted. Consequently, the long-standing question still remains unanswered: Is there too much use with full coverage, or too little with high coinsurance rates? The evidence that is available suggests that both may be true to some extent.

Problems with the Current Medicare Cost-sharing Provisions

As we have noted, there are a number of arguments, many of them strong, for incorporating cost-sharing provisions into insurance programs. Medicare's experience, however, has demonstrated that the behavioral responses of both beneficiaries and providers can largely offset the intended benefits of cost-sharing. Such responses can now be seen as a result of the faulty design of the Medicare benefit structure and of

the market imperfections that were not well understood in the mid-1960s, when Medicare was enacted.

A major flaw of Medicare's benefit structure is that it violates the primary purpose of insurance: to protect the beneficiary from financial ruin. The cost-sharing provisions of HI and SMI leave beneficiaries to face unlimited liabilities in the event of catastrophic illness. Under HI, patients are required to pay the full hospital cost after 150 days of hospitalization, after they have already paid high cost-sharing amounts beginning on the 91st day. In addition, SMI requires patients to pay 20 percent of reasonable charges for physician visits and other outpatient services. For expensive surgery, the 20 percent cost-sharing requirement could represent a significant drain on a patient's financial resources. Consequently, the risk of substantial financial loss, however small it might be, would encourage beneficiaries to buy supplementary insurance coverage. This flaw in Medicare's benefit structure helped to create the demand for medigap insurance.

Medigap, as mentioned earlier, is the supplementary insurance sold by private insurers to finance the cost-sharing under HI and SMI. Two-thirds of Medicare beneficiaries have voluntarily purchased this coverage (Congressional Budget Office 1983). Medigap premium rates are high. For example, the 1983 premium rate in Massachusetts was $412 (*Boston Globe* 1983). By assuming financial responsibility for cost-sharing amounts, medigap works to offset the cost-consciousness that Medicare's cost-sharing provisions were intended to encourage. Medicare benefits, therefore, must be restructured before the cost-sharing provisions will function in the manner intended.

A second major flaw in the Medicare cost-sharing provisions is that they were designed under the assumption that beneficiaries will have adequate information about the relative cost of services rendered by different providers as well as the alternative modes of care that would be available in treating an illness. The reality, however, is that patients lack adequate information about the fees charged by physicians and the prices charged by hospitals. Such information is not readily available. More important, it is usually the physician who makes the decisions about what tests should be done, what procedures should be performed, and where the patient should be hospitalized. While the patient normally makes the initial selection of a physician and decides when to consult him, subsequent decisions are mostly made by the physician acting as patient's agent. Both patients and physicians lack comparative

information about the cost of tests, medical procedures, and hospital care, as well as their effectiveness. As a result, even when cost-sharing is paid directly by the patient (that is, unsupplemented by private insurance), neither the patient nor the physician may be able to invest the resources required to obtain the data necessary for making well-informed choices.

Price Variation among Providers of Service

Increasingly, data have revealed the extent to which prices for the same service vary among hospitals and physicians, not only nationally but within the same market area. Price differences may, of course, occur for many reasons. Some result from real product differences, such as the technical competence of providers, that may lead to different health outcomes. Others, however, result from differences in amenities, managerial capabilities, or other factors that affect the cost of the service but may not influence the health outcome.

Examples of inter-provider price variation are shown in table 1. This table illustrates the allowed charges for selected diagnosis-related groups (DRGs) by hospitals within a single county in New Jersey. Comparisons of these data indicate that, for a given DRG, allowed rates could vary by approximately 100 percent. For example, the allowed charge for angina (medical) in the lowest cost hospital was

TABLE 1
Comparison of Reimbursement Rates for Selected DRGs in Essex County, New Jersey, 1981

	Range of Reimbursement		
DRG Category	Low	Average	High
Angina, medical	$1,960	$2,641	$3,646
Lens, surgical	1,201	1,504	2,180
Back disorder, medical	1,807	2,141	3,063

Source: Authors' tabulation of data provided by the New Jersey Department of Health. The DRG rates are partly based on each hospital's actual cost and partly on the state's average cost. Therefore, the differences in actual cost among hospitals are greater than the rates shown.

$1,960, and in the highest cost hospital, $3,646. Wide variation in hospital reimbursement rates are found for most procedures. Still greater variation exists in physician charges within the same market area (Hsiao 1978). It was found that physician fees vary by about three-fold for the same services.

The presence of such price variations and of so many reasons for cost differences raises an important public policy question: What charges are appropriate for a compulsory social insurance program, such as Medicare, to pay? In our view, Medicare patients and their physicians should continue to choose how best to obtain medical services. However, they should do so in light of vastly increased information and with enhanced incentives to make appropriate choices. Currently, as we have noted, there is little information and there are few incentives. In fact, given the flat deductible and coinsurance amounts required for hospital care, the current system encourages patients to use the most expensive hospitals. The challenge facing the designers of a benefit structure is to provide enhanced incentives for the appropriate use of services while at the same time maintaining the patient's financial access to care. As part of this process, it is imperative that Medicare provide its beneficiaries with adequate information on which to base their choices, so that self-rationing results in outcomes that benefit consumers and the program alike.

Proposed Reforms

Medicare's financial problems are complex. There are a number of underlying causes, including the flawed benefit structure, the open checkbooks provided to hospitals and physicians who can fill in any amount they want, and the legal and professional independence given to physicians in making medical decisions. As we continue to emphasize, no one solution can solve all of these problems. Stricter regulation of providers is one partial remedy. Raising taxes is another. Restructuring Medicare benefits is yet another. Each of these remedies can address some part of Medicare's financial diffficulties and can contribute to reducing the overall inflation in medical costs. No single remedy, of course, will be a panacea.

With respect to benefit restructuring, we believe that reforms should be made to achieve several primary objectives. First, the altered benefit

structure should provide financial protection to beneficiaries and access to the medical services they need but cannot afford. Second, the structure should be designed to encourage the efficient production of medical services and to reduce unnecessary medical care. Third, the benefits should be provided on an equitable basis. If patients have to share in the cost of medical care, they should do so according to their ability to pay. Fourth, benefits should be restructured to achieve savings in program outlays. Finally, the structure of Medicare benefits should be designed to minimize the beneficiaries' need to supplement those benefits with private insurance.

The primary purpose of any insurance plan is to protect the insured from financial catastrophe. The current benefit structure, as we have noted, fails to serve this purpose when it leaves beneficiaries with unlimited liabilities. This flaw can be remedied by limiting the patient's share of medical costs. Equity considerations, however, necessitate that the limit be linked to beneficiaries' family income. In order to achieve federal savings from an increase in cost-sharing as well as an equitable distribution of the cost-sharing burden, we have developed a set of proposed revisions to the Medicare program. The conceptual framework for those modifications is presented below. Specific rates and amounts are provided mainly for illustrative purposes.

HI:

Uniform deductibles and coinsurance would be replaced by amounts that would vary according to provider cost category, as described below. The one-day deductible for hospital care would be retained, but it would be based directly on each hospital's actual charges. From days 2 through 60, coinsurance rates of 0, 10, or 20 percent of charges would be assessed, depending on the hospital's cost category. Similarly, for skilled nursing facilities, a 25 percent copayment would be required after 20 days of care, which again would be based upon the actual charges of each SNF.

SMI:

An annual deductible of $100 per beneficiary would become effective January 1, 1985. The deductible amount would thereafter be indexed annually, according to the physician price index. Coinsurance rates would again be tied to the provider fee category. The coinsurance rate would be 10, 25, or 40 percent of charges exceeding the deductible, depending on the fee category of physician from whom the care was received.

Maximum limit on cost sharing:

An income-related limit would be placed on each beneficiary's overall liability for the cost of covered services (HI and SMI combined). For those with family incomes below $10,000 per year, the limit would be $1,000. For those in the $10,000–$20,000 income range, the limit would be $2,000. For all others, the limit would rise to $4,000. The method to be used for determining income levels is described in the following section. In order to remove the "notch problem" for those with family incomes between $10,000 and $12,000 and $20,000 to $24,000, the maximum limit would rise above the $1,000 and $2,000 levels, respectively, by one dollar for every two dollar increase in family income. Also, these amounts would be indexed to the consumer price index.

Prior to implementing the provisions, the federal government would classify hospitals and physicians into three broad categories. In each region (such as a Health Service Area), hospitals would be grouped into high, intermediate, and low cost facilities, based on the prior year's average cost for selected DRGs. The information needed to construct these categories is already being collected by hospitals and by the government as part of the recently implemented DRG-based reimbursement system for hospitals. Patients would then pay a different coinsurance rate depending on the cost category of the hospital in which their care was received. These "price" comparisons of area hospitals should be widely disseminated to consumers and physicians.

Other patients may have to be hospitalized in higher cost facilities for sound medical reasons. Under our system, these patients would have to pay a higher coinsurance rate, but their liabilities would be limited by a ceiling. Other patients may choose to go to higher cost facilities for convenience, better amenities, or because a particular physician uses that facility. If they made that choice, however, they would have to pay more.

Our proposed system would provide consumers with an incentive to weigh the costs and benefits of selecting the higher versus lower cost hospitals. In the long run, the informed choices made by patients directly or through their physicians could exert significant market pressures on hospitals to economize. Prestige and sophistication would not be the sole criteria for patients and physicians in selecting a hospital, as they frequently are now. Cost and efficiency would also

be considered. These decentralized market pressures could yield large dividends to the nation in reducing waste, duplication, and unnecessary services.

Our proposed plan would also require the federal government to classify physicians into three broad price categories: high, intermediate, and low. The amount of cost-sharing would then vary according to the price category of physician from whom care is received. The criteria for the classification would be based on the fees charged for selected, commonly performed procedures. The classification of physicians would again be done by service area, and the category to which each physician belongs would be widely disseminated to all consumers.

Our proposed modifications to the Medicare benefit structure were designed to apply to patients and providers participating in the traditional fee-for-service system, as the vast majority do. We propose that different provisions apply to participants in alternative financing and delivery systems that aim to provide health care services in a more efficient and cost-effective manner, such as health maintenance organizations (HMOs). Qualified providers would be exempted from the government's categorization scheme, and beneficiaries who chose to enroll in such systems would be exempted from cost-sharing requirements. Such preferential treatment, we believe, is consistent with the overall objectives of program reform.

Discussion

The proposed plan would insure Medicare beneficiaries against financial ruin by limiting their liability. As we have discussed earlier, equity considerations require that cost-sharing provisions be related to the beneficiaries' ability to pay. Our plan would establish income-related limits on each beneficiary's maximum liability, so that his out-of-pocket payments will never exceed a fixed amount. For example, a beneficiary whose family income is below $10,000 would be required to pay up to, but no more than, $1,000 in 1984. Current law places no ceiling on the amount he is required to pay. Under our scheme, the maximum limit would increase with family income, reaching a $4,000 ceiling for those beneficiaries whose family income exceeds $24,000. For those elderly people who are eligible for Medicaid, required cost-sharing amounts will continue to be paid by that program.

Placing a ceiling on beneficiaries' liability would reduce the need for beneficiaries to purchase supplementary insurance. Medicare enrollees can budget for and set aside the amount of total liability in the event a serious illness occurs. The reduction in the purchase of supplementary insurance coverage and the restoration of patients' financial participation in the program would increase the cost-consciousness of both patients and their physician agents.

Critics of our proposal may argue that beneficiaries prefer comprehensive, first-dollar coverage. Many elderly not only want full insurance but also find cost-sharing provisions too complicated. Even if Medicare covers catastrophic expenses, a certain number of people would still buy medigap policies to avoid the inconvenience of having to pay a portion of their medical bills. For those beneficiaries who buy medigap policies, our proposal would cause the premium rate to increase. If most beneficiaries buy such policies despite the disincentives to do so, then the potential efficiency gains from incorporating variable coinsurance rates into the Medicare program would be mitigated.

The proposed income-related ceiling is consistent with the basic principles of a social insurance program. Beneficiaries would continue to be eligible for coverage under a universal rule. Covered medical services would remain uniform for every eligible person. Neither eligibility nor covered services would be income-tested. While the expected value of benefits would vary according to family income under our scheme, that is also wholly consistent with social insurance principles. Social insurance differs from private insurance because of its redistributive effects. Private insurance emphasizes individual equity while social insurance stresses social equity. Under the largest social insurance program, the Social Security cash benefit program, there is a considerable redistribution of income from high-income to low-income individuals. This is because the formula for determining the cash benefits weighs lower wages more heavily than higher wages.

Under the current HI program, all employed persons pay the same tax rate on their wages (up to a specified ceiling). Consequently, persons with high lifetime average wages have paid much more in taxes than those with low wages, yet all Medicare beneficiaries are eligible to receive the same benefits. As a result, there is already a redistributive effect embedded in the current HI financing and benefit structure. Our proposed plan would increase the redistributive effects, but without altering the basic nature of a social insurance program.

When cost-sharing is related to income and to the prices charged by providers, some administrative mechanism must be devised to obtain income data and to identify program versus beneficiary liability by classifying providers. These administrative procedures will, admittedly, complicate the administration of the Medicare program and make it more costly. In this era of computerization, however, it is feasible to design a cost-effective system to administer our proposed plan. For example, income determination could be based on a simplified income statement on which the beneficiary reports his or her prior year's total income, including earned income, Social Security benefits, pensions, and unearned incomes. No deductions would be allowed. But these income statements would not have to be filed unless the beneficiary has exceeded (or expects to exceed) the ceiling for cost-sharing. According to data from the Congressional Budget Office (1983), less than 10 percent of all beneficiaries would exceed that ceiling.

Critics of our proposal may argue that Medicare currently reimburses hospitals based on standardized, regional DRG-specific rates that define the liabilities of the program. The DRG-based reimbursement system is also likely to promote efficiency in hospitals. As a result, they may argue, there is no need for establishing variable coinsurance rates for hospital services. We see the situation differently, however.

The DRG-based reimbursement system, which partially closes the open checkbook previously provided to hospitals, still allows hospitals to directly pass through their capital expenses, teaching, and research costs into Medicare reimbursement rates. As shown earlier in table 1, the DRG reimbursement rates in New Jersey can vary by 100 percent, mostly because of these direct pass-throughs. Moreover, the DRG-based reimbursement system, a national program, is broad in scope. It tries to provide incentives for the average hospitals, but such a system cannot deal effectively with local variations. Variable coinsurance rates would supplement the DRG regulatory strategy by reducing the patient's demand for care in higher cost hospitals. They would, therefore, provide greater incentives to economize. In addition, any reduced demand on the high-cost teaching hospitals would lessen the pressure on hospitals to become teaching facilities in order to achieve higher reimbursement rates and greater prestige. Of course, any shift in demand away from higher cost hospitals would also yield federal savings.

The determination of the price categories into which each provider belongs would also be relatively straightforward, given that price data are already being collected from providers by the federal government. Providers would be notified in advance into which cost category they had been classified. Their billing systems would thus be able to determine easily which part of the bill would be reimbursed by Medicare and which part must be paid by the patient. Patients would be supplied with the price category to which a provider belongs and would thus know in advance the financial consequences of their choices (i.e., the percentage of charges for which they would be liable). When a beneficiary's direct payments have exceeded his maximum liability ceiling, the government can issue a card to the patient indicating that, thereafter, the provider can bill Medicare directly for all subsequent allowed charges.

As a consequence of providing full insurance for catastrophic illnesses, the medical resources spent on them may increase. It is likely that more patients would be hospitalized and given treatments that have questionable marginal benefits. These serious potential side effects of fully insuring catastrophic illnesses will have to be addressed through regulations and peer review.

A variable coinsurance approach such as we propose has not been attempted before on a large scale. While the concept is theoretically sound, there is no empirical evidence to determine how effective this approach will be in generating competition and promoting efficiency. Admittedly, it is possible that many beneficiaries will not shop around for the least costly providers for the reasons given earlier. In that event, the impact of variable coinsurance on promoting efficiency within the health care delivery system would be minimal.

Who Gains and Who Loses

Our proposed plan would directly affect Medicare beneficiaries as well as the federal and state governments, and it will indirectly affect hospitals, skilled nursing facilities, physicians, and taxpayers. The changes in the benefit structure would shift the cost burden among beneficiaries, and between taxpayers and beneficiaries. Also, the restructuring of benefits would influence the demand for services among providers and the rate of inflation in medical care costs.

The proposed plan would result in a reduction in federal outlays for Medicare. Preliminary estimates of the federal savings are presented below.

TABLE 2
Preliminary Estimates of Reductions in Federal Outlays from the Proposed Plan (in billions)

	1985	1986	1987
Hospital coinsurance change	$ 2.3	$ 2.6	$ 2.8
SMI deductible increase	0.5	0.8	1.1
SMI coinsurance change	1.3	1.6	1.9
Ceiling on total cost-sharing	−2.1	−2.4	−2.7
Total	$ 2.0	$ 2.6	$ 3.1

Source: These estimates are based on figures published by the Congressional Budget Office, *Changing the Structure of Medicare Benefits: Issues and Options*, March 1983. Authors extrapolated the CBO estimates to the benefit provisions included in our proposed plan.

It is important to note that these estimates assume no behavioral changes by the beneficiaries in demanding medical services nor changes by providers to operate more efficiently. These figures only represent the shift in medical costs between the federal government and other payers. In other words, these estimates understate the potential federal savings and overstate the additional costs to beneficiaries, because the efficiency gains that may result from the restructuring of benefits are excluded from these estimates.

In the long run, we would expect behavioral changes by beneficiaries in demanding medical services, and we would expect some providers to respond to competition by controlling their production costs or accepting a lower income. The savings resulting from these behavioral changes will take time to achieve, and their magnitude is uncertain. We, therefore, do not wish to provide unreliable estimates of these potential savings. Nevertheless, we think it is plausible that the long-run savings in outlays for medical care, because of the restructuring of Medicare benefits, could largely offset the increases in cost-sharing that beneficiaries would have to pay in the near term.

The reductions in annual federal outlays (shown in table 2) will in large part be assumed by Medicare beneficiaries. (States will pay a small part through the Medicaid program.) The increases for beneficiaries, on average, will amount to approximately $80 per person in fiscal

year 1985, $100 in 1986, and $120 in 1987. These financial burdens, however, will not be shared equally by all beneficiaries. Those with large medical expenditures would actually pay less than these average figures—some might, in fact, pay less than they would under present law—and those with small medical expenditures would pay more.

Beneficiaries with high expenditures will pay less under our plan because it provides protection against catastrophic medical expenses. The estimated cost of this coverage is also shown in table 2. The cost of this income-related catastrophic protection plan will offset a large portion of the federal savings produced by raising coinsurance on hospitalization and physician services. The 7 to 10 percent of beneficiaries whose medical expenditures exceed the ceiling will benefit from this coverage, as their out-of-pocket medical payments will decrease significantly. Meanwhile, those beneficiaries who have short stays in hospitals may pay more because of the imposition of coinsurance. But those beneficiaries who obtain services from low-cost hospitals would pay no coinsurance. Those patients who use physician services will pay slightly more because their deductible would be raised from $75 to $100, and, for beneficiaries who use medium- and high-cost physicians, the coinsurance rate would be increased beyond the current 20 percent. Some of these increased outlays, however, may be offset by reductions in expenditures for medigap policies.

Medicare eligibles who obtain services from low-cost physicians or hospitals would gain because their coinsurance rates would be less than those under the present law. When beneficiaries use low-cost hospitals, there is no coinsurance for any hospital days. When beneficiaries use low-price physicians, their coinsurance rate is reduced from 20 percent as under the present law to 10 percent.

Another redistributive effect would occur in addition to the income transfer between beneficiaries who incur large medical expenses and those who incur small amounts. Our proposed income-related ceiling on patients' liability would benefit low-income beneficiaries much more than those with high income. Table 3 presents the distribution of the aged population according to family income. Currently, those with incomes of $5,000 or less are likely to be covered by Medicaid as well as Medicare. They would continue to have dual coverage under our proposed plan and would thus not be affected. Those with incomes between $5,000 and $10,000 would have a ceiling on direct payments of $1,000, which would increase to $4,000 for those with family

TABLE 3
Distribution of Family Income among Noninstitutionalized Elderly
(1984 dollars)

Family income category	Percentage of beneficiaries
$ 5,000 or less	12.6
5,001–10,000	22.0
10,001–15,000	19.4
15,001–20,000	11.9
20,001–30,000	14.7
30,001 and above	19.4

Source: Congressional Budget Office, *Changing the Structure of Medicare Benefits: Issues and Options*, March 1983, p. 22.

incomes of $24,000 or more. Beneficiaries with incomes greater than $24,000 are likely to benefit little from the ceiling, since, according to Congressional Budget Office estimates, less than 3 percent of the aged population will have out-of-pocket expenses that exceed $4,000.

All Medicare beneficiaries, however, will be protected from medical expenses that are catastrophic in relation to their ability to pay them. Even those beneficiaries who do not incur large medical expenses would have the peace of mind that derived from knowing that if they were to develop a serious illness, they would not face serious financial hardship.

The gains and losses among medical providers will also be uneven. In the long run, the high-cost hospitals are likely to lose patients, and those with low costs are likely to gain patients. The same shift in demand is likely to occur among physicians; those with high charges, on average, are likely to lose some patients, while those physicians who charge less than the average price in a given service area would gain patients. These shifts in demand would result from the variable coinsurance rates incorporated in our proposed plan.

Conclusion

We believe that the existing Medicare benefit structure is seriously flawed. Because uniform, flat-rate deductibles and coinsurance are currently imposed on users of services, there is little incentive for

most patients and physicians to shop around for lower cost providers or to evaluate the need for proposed treatment procedures. Nor is adequate information available even for those who want to do so. Perhaps more important, beneficiaries have no protection against financial ruin if they do become seriously ill, because there is no limit on what patients have to pay directly.

We have proposed that Medicare's benefit structure be modified. As in the current system, we would retain deductibles for hospital care and outpatient services, to deter unnecessary hospital admissions and to reduce administrative costs. We would also retain coinsurance, but would restructure both the rates and the timing. Coinsurance rates would be linked directly to actual provider charges with higher rates associated with higher cost providers. Coinsurance would be required for all services used, including hospital care. However, the total amount of cost-sharing paid by each beneficiary would be limited to a maximum amount that is related to family income. This represents a significant departure from the current system. Finally, a key component of our proposed plan involves the dissemination of comparative provider charge (price) information that is not currently available to either patients or physicians.

Our proposed modifications of the Medicare benefit structure address what we consider to be the major design flaws of the current system. At the same time, we believe they should also be considered as one approach to reducing the anticipated deficit in the Medicare trust funds. As we noted at the outset, however, this benefit restructuring should be viewed as only one component of a multifaceted solution to Medicare's financial problems. We have estimated that our proposed plan for benefit restructuring will result in savings of $3.1 billion in 1987; while substantial, these savings by themselves will not offset program deficits in the long term. Moreover, we would not advocate, as a matter of principle, that beneficiaries should assume sole responsibility for restoring Medicare's financial health. That responsibility is one that should be shared by beneficiaries, providers, and taxpayers—future beneficiaries—alike.

References

Beck, R.G. 1974. The Effects of Co-Payment on the Poor. *Journal of Human Resources* 9:129–42.

Boston Globe. 1983. Medex Increase Upheld: Future Hikes Battled. August 31.

Congressional Budget Office. 1983. *Changing the Structure of Medicare Benefits: Issues and Options.* Washington.

Conrad, D., and T.R. Marmor. 1980. Patient Cost Sharing. In J. Feder, J. Holahan, and T. Marmor, eds., *National Health Insurance: Conflicting Goals and Policy Choices.* Washington: Urban Institute.

Enterline, P.E., V. Salter, A.D. McDonald, and J.C. McDonald. 1973. The Distribution of Medical Services Before and After 'Free' Medical Care: The Quebec Experience. *New England Journal of Medicine* 289:1174–78.

Hsiao, W.C. 1978. Patterns of Physicians' Charges: Implications for Policy. *Proceedings of Conference on Regulating Health Care Costs,* September 1978. Washington: U.S. Health Care Financing Administration.

Newhouse, J.P., W.G. Manning, C.N. Morris, L.L. Orr, N. Duan, E.B. Keeler, A. Leibowitz, K.H. Marquis, M.S. Marquis, C.E. Phelps, and R.H. Brook. 1981. Some Interim Results from a Controlled Trial of Cost Sharing in Health Insurance. *New England Journal of Medicine* 305:1501–7.

Phelps, C.E., and J.P. Newhouse. 1972. Effects of Coinsurance: A Multivariate Analysis. *Social Security Bulletin* 35:20–29.

———. 1974. Coinsurance, the Price of Time, and the Demand for Medical Services. *Review of Economics and Statistics* 56:334–42.

Roemer, M.I., C.E. Hopkins, L. Carr, and F. Gartside. 1975. Co-payments for Ambulatory Care: Penny-wise and Pound Foolish. *Medical Care* 13:457–66.

Scitovsky, A.A., and N. McCall. 1977. Coinsurance and the Demand for Physician Services: Four Years Later. *Social Security Bulletin* 40:19–27.

Scitovsky, A.A., and N.M. Snyder. 1972. Effect of Coinsurance on Use of Physician Services. *Social Security Bulletin* 35:3–19.

U.S. House of Representatives. Committee on Ways and Means. 1984. *Conference on the Future of Medicare.* 98th Congress, 2nd Session. Washington.

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