

Compensating for Biased Selection in Health Insurance

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THE POLICY INTEREST IN THE GROWTH OF HEALTH maintenance organizations (HMOs) was originally focused on their potential for delivering health care at lower cost than conventional fee-for-service systems with reimbursement insurance. There is now substantial evidence that many HMOs are more efficient providers of health care coverage (Luft 1981; Manning et al. 1984). It is also apparent that not all HMOs are the same, that people prefer some plans over others, and that future discussions should focus on how to set payments to plans within a framework allowing people to enroll in one of many alternative health care delivery systems.

The number of employers offering a choice of health plans is increasing rapidly. There is mounting evidence that biased selection can occur in such multiple-choice plans (Wilensky and Rossiter 1986; Luft, Trauner, and Maerki 1985; Buchanan and Cretin 1986). In such cases, one of the most serious problems is how to arrive at a fair payment in the face of unequal risks. This problem of biased selection will become increasingly severe as competition grows in the health insurance sector.

Health insurance plans and alternative delivery systems do not necessarily assume they will receive a random mix of enrollees; however, they do attempt to predict their enrollment mix so they can set their premiums and other sources of revenue, such as copayments and deductibles, to cover anticipated expenditures. Adverse selection is

the situation in which a plan attracts, or is left with, enrollees whose health risk is greater than that upon which its revenue expectations were based. When this occurs, the plan experiences higher than expected costs given its level of efficiency in providing medical care. Moreover, when one plan experiences adverse selection, another may experience favorable selection because it has a lower than expected risk mix. Favorable selection allows above-average profits without particularly efficient methods of production. "Excess profits," however, are only one of the problems caused by biased selection. The health plans with the highest risk enrollees will have to increase their premiums and the employer is likely to be pressured for an increased contribution.

People with different health needs will find some plans more or less attractive than others because of differences in benefits, providers, accessibility, and other factors (Berki and Ashcraft 1980). Such enrollee choice among different health plans is often seen as a positive aspect in a pluralistic, market-oriented society. If plans actively try to attract low-risk enrollees, however, the likelihood of selection is magnified. As long as plans are paid a fixed annual premium, it is to their advantage to try to attract enrollees who will use fewer medical care services and avoid those who use more. Because there are inherent differences across individuals, it is important that plans be offered more money for higher risk people; otherwise, the sick will find coverage far more expensive or unavailable. Arguments of fairness and equity lead many people to feel the sponsor's contribution should be adjusted for risk differentials so people are not forced to bear personally the extra expense associated with their risk status. In addition, one of the clearest risk factors is age, and the Age Discrimination in Employment Act, as amended by the Tax Equity and Fiscal Responsibility Act prevents employers from requiring larger payments from older workers, implicitly requiring larger employer contributions for these workers.

While nonrandom enrollment will always occur when people have a choice of health plans, whether this biased selection is a problem for the maintenance of a multiple-choice system depends on how payments to health plans are determined. This article will briefly outline some of the factors leading to selection and then discuss how payments are usually determined. This discussion focuses on the crucial differences between premiums, which are set by the health plans, and contributions, which can be adjusted by the employer. The third

section will identify some of the key issues in offsetting selection bias. The fourth section will offer a proposal designed to create a self-correcting system to compensate for biased selection among enrollees within an employee group. This proposal takes as given the employer's total contribution, and uses an intermediary to elicit and collect data from the health plans to reallocate the contribution dollars to compensate for biased selection. Such a plan can incorporate a wide range of approaches and it need not be limited to current administrative data. The final section outlines some of the issues likely to arise in the implementation of such a proposal.

Factors Leading to Selection

Adverse selection has long been a concern to the health insurance industry. If an insurance company or an HMO offers a policy based on the expectation of average-risk enrollees and an unexpectedly large proportion of high-risk people actually enroll, it will lose money if benefits and premiums remain constant. There are many classic situations in which adverse selection occurs. For example, some people enroll in a plan anticipating a need for health care, such as maternity benefits (Pauly 1974). Others switch from one plan to another in order to take advantage of certain types of coverage, such as mental health or chiropractic (Schuttinga, Falik, and Steinwald 1985). To reduce the impact of such selection, most insurers offering individual coverage restrict benefits for preexisting conditions or require a health examination. Because employers often eschew such exclusionary tactics, insurers often will not market to small employers for whom one or two high-cost cases could swamp the likely revenues from the group, or to companies in high-risk industries. For example, there is currently concern that restaurants and other small firms in the gay areas of San Francisco are finding it impossible to obtain health insurance because carriers fear they will have to pay for AIDS patients.

To some extent, selection can be actively managed through the design of benefit packages. Exclusionary clauses are classic methods used to avoid high-risk individuals, but with such techniques often precluded in group coverage, carriers and HMOs can be more subtle by adding benefits particularly attractive to low-risk enrollees. For example, well-baby benefits will tend to attract young couples rather

than the middle aged. Some HMOs advertise their sports medicine clinics rather than extensive coverage for chronic medications. Others could have an excellent panel of primary care physicians, but a less distinguished group of difficult-to-reach specialists for patients with chronic illnesses. A Medicare supplemental plan could include dental benefits if it is found that the elderly who still have their teeth use less hospital care than do those with dentures.

Selection is particularly important in situations involving prepaid group practice HMOs (PGPs) competing with conventional fee-for-service plans. (The same discussion applies to individual practice association HMOs and preferred provider arrangements with restricted lists of providers.) One major reason given by consumers for not enrolling in PGPs offering broader benefits at lower premiums is that they do not want to give up their existing doctor-patient relationship (Berki and Ashcraft 1980). The people who are least likely to have such relationships are new arrivals in the community, who are typically younger than average, and those who use physicians infrequently, either because of good health or an aversion to medical care. Thus, a group practice may initially attract low-risk persons, resulting in favorable selection. However, over time, if patients remain loyal to the PGP, the favorable bias will become attenuated because of regression to the mean (Welch 1985).

It is important to note that selection can occur for a wide range of reasons, that it may result from the attraction of low-risk people into some plans, the flocking of high-risk people to others, or the exclusion of high-risk people by some plans. It may be encouraged or discouraged by health plans or carriers, with varying success, but it is very difficult to preclude by regulation or the structuring of choices among plans. Mandatory basic benefit packages and periodic open seasons with no health screening will avoid some of the most obvious forms of exclusionary tactics. Similarly, requirements for coverage of tertiary care centers and out-of-area emergencies will also help, but more subtle forms of manipulation can probably be incorporated by aggressively competitive plans. Thus, one must look to methods that adjust payments depending upon the resulting risk differentials in enrollee populations, regardless of how such differentials occurred.

Current Methods of Determining Payments

HMOs receive the vast bulk of their revenues from premiums and nominal copayments, which are then used to pay providers. Conventional insurers and preferred provider arrangements receive all their direct revenue from premiums, but much more substantial copayment provisions imply direct payments from patients to providers. (Coordination of benefits provisions and other minor transfers can be ignored for this discussion.) Thus, the financial cost of enrolling in an HMO is largely captured in its premium, while that of a conventional plan is measured by its premium and the expected value of the associated copayments. Employers typically offer a contribution to offset all or part of the premium, and employees are responsible for the remaining net premium or payroll deduction. Biased selection is often discussed in the context of premiums, yet it is argued herein that the primary focus should be on the employer's contribution.

The distinction between community and experience rating is crucial for an understanding of the biased-selection problem. In community rating, a health plan sets its premium in a specific geographic area to reflect its average cost for all enrollees, which is merely total cost divided by total enrollees, with suitable adjustments for overhead, profit, legal reserves, and anticipated cost increases. Most HMOs use a community rating approach, which means that all employee groups face the same premium, irrespective of whether they are typographers whose average age is 50 or computer programmers with an average age of 25. (Actual premiums may vary somewhat across employers because of differences in optional benefits.) The early HMOs had a strong ideological commitment to community rating (as did the Blue Cross plans until the 1950s) and the federal HMO act required federally qualified HMOs to use community rating. (It is important to note, however, that some HMOs are beginning to use quite different approaches, such as variable rating, often with the apparent intent of maximizing revenue while only slightly undercutting indemnity premiums [Sutton 1986].)

Under experience rating, a health plan sets the premium for each employee group, based upon the actual or expected costs incurred by that group. Most conventional insurers and service benefit plans (e.g., Blue Cross and Blue Shield) offer experience-rated premiums for moderate to large employer groups, and most large employers self-insure, which

is internal experience rating. It is easy to see that the group of computer programmers might prefer a carrier offering an experience-rated plan reflecting their below-average risk over one offering only a community-rated plan reflecting the average risk of all enrollees. Conversely, the typographers are likely to prefer the community-rated plan.

Large employers typically offer a choice of plans, usually one conventional fee-for-service plan and one or more HMOs, with selection occurring within the group as employees choose among alternative plans. There are situations in which the broad benefit package of an HMO, often reflecting the requirements of the HMO act, attracts high-risk enrollees who prefer the HMO to a fee-for-service plan with limited benefits and high copayments. There is a growing body of evidence, however, supporting the notion that some options—usually the new, rapidly growing HMOs—attract a younger segment of the enrollee group, and some studies suggest these people are also less likely to use costly medical care (Buchanan and Cretin 1986; Jackson-Beeck and Kleinman 1983; Luft, Trauner, and Maerki 1985; Wilensky and Rossiter 1986).

If low-cost enrollees become concentrated in HMOs, employers are faced with a difficult problem. The increasing average risk of those remaining in the conventional plan will force up the experience-rated premium, while the lower risk of those joining the HMOs has little effect on their community-rated premiums. (It does have an effect, but since it is averaged over all members of the HMO, little is recaptured by the employer in question.) The problem is compounded if the employer's contribution is tied to the cost of the conventional plan, as is often the case either by tradition or union contract, because current law requires equal contributions to all plans. Even without an explicit link between the conventional plan's premium and the contribution level, an employer may recognize that the increasing costs are partly due to adverse selection. If the employer does not want to shift that burden to employees who are already suffering health problems through increased net premiums or reduced benefits, the contribution must be increased.

Adjustments for Biased Selection

The problem of biased selection has been recognized by both public and private payers. The Medicare program now offers risk-based capitation

contracts to HMOs and competitive medical plans (CMPs). The premium is set at 95 percent of the adjusted average per capita cost (AAPCC), which is derived from the Medicare expenditures per beneficiary in the fee-for-service sector within each risk category in the local area, weighted by the number of enrollees in the HMO in each risk category. Further adjustments are based on the anticipated national increase in per capita cost. The risk categories reflect administrative data that should be readily available such as age, sex, whether or not the person is eligible for Medicaid, and whether or not the person is in a nursing home. In fact, even nursing home status is not currently available on the Health Care Financing Administration's administrative records, which is an example of the problems in designing an administratively feasible system of this type. (See Anderson et al. 1986 and Hornbrook 1984 for discussions of how the AAPCC is derived.)

Several approaches are being tried by a small number of employers to address these selection problems. Some employers are demanding that HMOs provide utilization data for their enrollees in much the same fashion as conventional insurers (Winsberg 1985). The underlying notion is that such information could be used to negotiate for lower premiums from the HMOs. Many HMOs resist such demands on two grounds. They argue that such information is not routinely collected within prepaid group practice model HMOs, unlike the situation for insurers whose claims-processing activities naturally produce such data. Second, HMOs argue that their mode of practice reduces utilization of easily measured expensive services such as hospitalization, and they should not be penalized for doing just that.

The conflict seems to arise from the employers' viewpoint of paying a fixed premium for a basket of fruit, without being able to specify the mix of watermelons, grapes, and kiwi fruit. Demands for data seem motivated by a sense that if one could estimate the HMOs' true costs, premiums could be negotiated downward, a feeling likely to be reinforced by Illinois Bell's recent use of negotiations to reduce the premiums it pays to local HMOs (Peres and Stansbury 1986).

One might expect competition among HMOs to drive premiums down to costs, but there are several factors impeding such a process. In spite of the recent rapid growth of HMOs, there are not many communities with a large number of HMOs, and even when several exist in the same metropolitan area and are offered by the same employer, individual employees rarely find that more than a couple

are conveniently located. Furthermore, employer contributions, which are often designed to keep the fee-for-service plan affordable, are often well above the level of the HMO premiums. This reduces consumer price sensitivity and provides incentives for HMOs to set their premiums at the level of employer contributions, rather than near their cost (Sutton 1986). Reducing their premiums would not attract more enrollees, so all the HMOs in an area would have incentives to resist price cutting, and the usual competitive pressures would not be at work.

Community Rating by Class vs. Equal Contributions by Class

In another approach, HMOs are using what is termed "community rating by class" which is allowed by the federal HMO act. Under this scheme, various risk categories are defined, such as age and industry. The HMO then calculates its premium for each category of enrollee using the community-rating methodology within each risk category. The HMO premium for an employer is the premium for each category weighted by the enrollment in that category. In this way, the employers of typographers and computer programmers would face different premiums from the same HMO.

At first glance, community rating by class appears to be similar to Medicare's AAPCC in that risk categories are defined and payments are adjusted for differences in enrollment across the risk categories. There is, however, a crucial difference between the two approaches. Community rating by class (CRC) adjusts the HMO *premium* for differences between the risk of an enrollee subgroup within the HMO and the rest of the HMO. In contrast, the AAPCC adjusts the *contribution* to each plan based upon the enrollee mix.

Table 1 illustrates the CRC and AAPCC approaches with an HMO and a fee-for-service (FFS) plan. Suppose there are three risk groups, and the "premium cost" for covered benefits for the HMO are lower for all three risk groups than for the fee-for-service plan, columns A vs. F. (Note that this need not be the case; low-risk enrollees in FFS may actually be less expensive for the employer if substantial copayments and deductibles are borne by the enrollees.) If the HMO uses community rating, its premium is determined by its overall enrollment (column B) so the premium is its overall average cost of \$1,129. The enrollment from company A in the HMO, however, is weighted even more heavily

TABLE 1
 Example of Community Rating by Class and Contribution by Class

HMO yearly cost	Total HMO		Company A-HMO		FFS yearly cost	Company A-FFS		90% of FFS cost		Company A-HMO	
	Enrollment	Cost	Enrollment	Cost		Enrollment	Cost	Enrollment	Cost	Enrollment	Cost at 90% FFS
A	B	C	D	E	F	G	H	I	J	K	
Low Risk \$ 500	10,000	\$ 5,000,000	1,500	\$ 750,000	\$ 550	5,000	\$ 2,750,000	\$ 495	1,500	\$ 742,500	
Medium Risk 1,000	20,000	20,000,000	500	500,000	1,200	5,000	5,500,000	990	500	495,000	
High Risk 10,000	1,000	10,000,000	50	500,000	12,000	500	6,000,000	10,800	50	540,000	
Total	31,000	35,000,000	2,050	1,750,000		10,500	14,250,000		2,050	1,775,000	
Average Cost			1,129	854			1,357			867	

toward the lower-risk groups than is the case for the HMO as a whole, so if community rating by class were used, the premium for this employer's enrollees in the HMO would be only \$854. Obviously, if the HMO were to shift to CRC, its premiums would rise for other enrollee groups with a disproportionate share of higher-risk persons.

The AAPCC approach, on the other hand, adjusts contributions, not premiums. Suppose the employer had been providing a contribution equal to 90 percent of the FFS-plan costs, or $.90 \times \$1,357 = \$1,221$. This more than covers the HMO premiums, but leaves FFS enrollees with a payroll deduction of $\$1,357 - \$1,221$ or \$136. As long as the employer makes the same contribution to all plans, the only way to reduce contributions to the HMO is to increase the payroll deductions for FFS enrollees. If the employer were to use a contribution-by-class approach, as in Medicare's AAPCC, it might offer 90 percent of the FFS cost *within each risk category* (Sutton 1986). This works out to \$867 in this example (column K), just above the CRC premium and substantially below the straight community-rated premium. The contribution-by-class approach implements the ideal of an equal contribution for all employees in the same situation, while recognizing the fact that high-risk enrollees are likely to be unattractive to HMOs, unless they carry with them higher premiums.

The notion of adjusting contributions according to risk categories has some other important implications. It does not depend upon the cost structure of the HMOs, and it certainly need not be based upon fee-for-service costs, as does the Medicare AAPCC. There is no limit, other than administrative feasibility, to the number and complexity of risk categories. It also shifts the initiative from the HMOs to the employers. Employers can devise an adjusted contribution using only their own data, and the HMOs are then free to respond. In this example, a shift to contributions by class would probably force the HMO to lower its premium to, at most, \$867, possibly by adopting a complementary community rating by class scheme. The next section will expand upon this basic concept.

Contributions by class has been thought by some to be outlawed by a provision (Section 1310) of the HMO act that requires the contributions employers make to HMOs to be no less, in dollars and cents, than the contribution provided to conventional insurance plans, unless the HMO premium is less than the contribution. Whether this provision is actually a constraint is subject to various interpretations.

One view is that the provision applies only to employers who have been mandated under Section 1310 by a federally qualified HMO. A second view is that as long as an employer offers the same contribution for each employee *within* a risk category, the provisions of the act will have been met. Under such an interpretation, the average contribution to each plan will depend on its mix of enrollees and will vary across plans, but the premium will be the same for each enrollee in a plan. A recent agreement between the Group Health Association of America and the Washington Business Group on Health proposes new regulatory language allowing substantially increased flexibility in the setting of premiums and employer contributions, which may make moot the legal issues (DiBlase 1986; Fritz and Repko 1986).

Issues in Offsetting Biased Selection

In developing an approach to offsetting selection bias, it is important to consider three issues: (1) technical and administrative problems in measuring selection effects, (2) ethical and political pressures to protect high-risk individuals, and (3) the flexibility and expertise of carriers vis-à-vis the government and employers.

Measuring Selection

While observers may agree that biased selection exists, it is difficult to develop quantitative measures of its impact. Various studies indicate that simple, objective risk factors potentially available from administrative records, such as age, sex, and institutional status, are relatively poor predictors of medical care utilization in the context of selection (Anderson and Knickman 1984; Hornbrook 1984). A better predictor of future utilization on an individual basis is past utilization, especially when acute and chronic conditions are differentiated (Anderson and Knickman 1984; Beebe, Lubitz and Eggers 1985). Unfortunately, even such measures are relatively inaccurate, and their predictive value is likely to vary across types of delivery system. For example, HMOs can claim that they are very effective in reducing hospital use and that risk adjustment based on prior hospitalization will penalize them for being efficient. Furthermore, such predictors focus on the medical-need aspects of utilization, yet there is substantial individual variability in the

decision to seek medical care. The examples of selection outlined above often depend on personal preferences and situational variables, such as the availability of care-givers at home, which are difficult to capture in an objective measure of risk.

If risk adjustments are to be calculated for every enrollee, one is limited to using only a small number of factors easily measured from administrative records, such as age, sex, and location. While prior medical care utilization could be used, claims files and hospital abstract data often lag by a year or two. Furthermore, the difficulty in deriving enrollee-specific measures is underscored by the fact that few insurers or employers even know exactly how many dependents their employees have.

Certain measures of health status derived from questionnaires have been shown to be quite accurate predictors of subsequent use across various types of delivery systems (Thomas et al. 1983; Manning, Newhouse, and Ware 1982). Unfortunately, it is infeasible to administer such questionnaires to all enrollees. Furthermore, if the sponsor's contributions are linked to individual risk scores, there will be incentives for individuals and carriers to inflate scores as health plans design ways to attract people with higher scores than their true risk levels. For example, if higher premiums and contributions were offered for people with hypertension, a plan could run health fairs with blood pressure tests, and encourage those with elevated readings to enroll. Since there is substantial random variation in blood pressure readings, hypertensives identified in this manner will often be true normotensives, resulting in a windfall to the plan.

Pressure to Increase the Sponsor's Contribution

The problems in adjusting for risk differentials make it difficult to determine if a high-cost plan is inefficient or is merely experiencing adverse selection. The social rationale for insurance is the spreading of the risk of major expenditures from the small number of persons who experience such costs to the larger pool who are healthy (Arrow 1963). There are strong political and social reasons for not making the high-risk individual bear the full additional cost of his or her care. An ideal payment system will adjust for unavoidable risk differentials and the residual enrollee premium will reflect only differences in efficiency, scope of coverage, and luxury items, such as champagne

dinners in the hospital. (There are differences of opinion as to whether all risk factors should be offset for the individual. For example, health plans should be paid more to enroll smokers because of their greater health risk, but it is not clear that the government or employer should offset that part of the risk.)

In the absence of clear measures of the extent of selection bias, the managers and enrollees of a plan with high costs are surely going to claim to be victims of adverse selection, and thus press for a larger contribution. This problem is exacerbated by the fact that the vast majority of most employee groups are still in the fee-for-service system. Some may choose to enroll in new plans as they are offered, but the experience of almost every employer and Medicare demonstration site is that, at least initially, most stay with their existing plan. Thus, there must be a residual carrier, and this has typically been the employer's preexisting conventional carrier. (Note, however, that some employers, such as Lockheed, make only HMOs available to employees in their first year with the firm.)

Since new HMOs and alternative delivery systems have the choice of entering or not entering a particular market, it is reasonable to assume they will only enter if they anticipate either fair compensation for their risk mix or favorable selection. If the latter, this will leave the residual pool with, at best, an average-risk population, but more likely, one with steadily increasing risk. Since fee-for-service tends to be more costly than capitation, the higher costs in the residual plan cannot be clearly classified as due to adverse selection or to inefficiency. Enrollees in the residual pool will constitute a powerful force arguing for higher subsidies. The competing HMO delivery systems will argue that the cost differences merely reflect their greater efficiency and payments to them should not be reduced. Once one moves from a fixed contribution per enrollee to one designed to offset risk differentials, it is not clear what rates should be used.

Unequal Information and Flexibility

Further complicating the problem is the imbalance in information and expertise between carriers and employers. Alternative delivery systems are usually local in nature and thus have a far better understanding of the local population and medical care systems than do outsiders. The strategic location of clinics, advertising, provider visibility, and

reputation can be used to induce favorable selection in ways difficult to prove except by their effects on enrollment. Furthermore, large national employers usually design programs that are national in scope and generally allow little discretion for local variation. Benefits and enrollee premiums are often uniform even if costs vary markedly across areas. If the program is to be administered centrally, factors used to adjust for risk differences must be available nationally. Finally, carriers and health plans clearly have a much larger stake in understanding and manipulating premiums than does an individual employer, and their expertise in such approaches is likely to be far greater.

Thus, it seems that any scheme that relies upon the employer to devise risk-factor adjustments to fully offset selection is not likely to work well. Some alternative delivery systems will find it profitable to find and exploit weaknesses in the system, leaving employers and conventional carriers with the residual pool of higher-risk people. This will create pressures to increase the sponsors' contributions. The excess profits to be garnered by favorable risk selection may attract unsavory individuals who will manipulate the system by encouraging active selection and by maximizing profits and administrative costs, as in the California prepaid health plan scandals of the 1970s (Goldberg 1976; Chavkin and Treseder 1977).

Quite another approach, known as the triple option, has been developed by some insurers such as CIGNA. In this scheme, the carrier offers the employer a package including conventional insurance, a preferred provider organization, and an HMO, for a fixed overall premium per enrollee. The carrier is then responsible for calculating what risk-based adjustments need to be made to each of the three plans, and the employer need not worry about biased selection. This internalization of risk by the carrier is very attractive, but it has an important shortcoming. Risk adjustments "within the carrier's family" are implicit and do not extend to other HMOs. Thus, the single-carrier triple option is unlikely to be very attractive to employers who already have a substantial number of enrollees in HMOs not part of the carrier's triple option.

Compensating for Biased Selection

Instead of focusing on methods to preclude biased selection, it may be better to let selection occur, but offer a larger share of the employer's

contribution to those plans with adverse selection, and a smaller share to those with favorable selection. This implies a "zero-sum game" in which health plans are forced to negotiate with each other over how the contribution pool will be allocated. This will require someone to serve as a mediator, who will also have sufficient expertise to offer impartial ways to adjust for risk differences. The model bears some resemblance to the "triple option" in that an intermediary offers to risk-adjust payments to various health plans. Unlike "triple options" currently appearing on the market, however, employees would be able to choose among a broad range of HMOs and other systems, and the mediator/contractor would have to develop explicit methods of adjusting payments to account for biased selection. The mediator/contractor will have substantially more flexibility and expertise in designing risk-adjustment systems than an employer. For example, risk adjustments can be done both prospectively and retrospectively, and risk factors can be derived from both population samples and from each enrollee.

A General Contractor Model

To some extent, systems to offset the problems of biased selection can be analogous to those used in the home contracting industry. Contracts for home construction and remodeling often take one of two forms: (1) fixed price based on a detailed review of the plans and specifications; and (2) time and materials, including overhead and profit (Kidder 1985). The first clearly shifts the risk of cost overruns to the contractor. The second often appears to be more attractive at the outset in terms of a lower estimate, but in part this is because the owner bears the risk for overruns. In many instances, the prime contractor has a set of subcontractors such as electricians, plasterers, and plumbers, whose estimated costs are incorporated in the bid. Some subcontractors prefer to bill on a time and materials basis, while others, especially those with fairly predictable tasks, are willing to work for a fixed price. Part of the general contractor's expertise is in the selection of subcontractors and the negotiation of appropriate payments with them.

The general contractor also has the task of coordinating the subcontractors and allocating responsibilities among them. When problems occur in a job there is often a conflict over who is responsible—the plumber may blame the carpenters for errors in the rough plumbing

work, the carpenters may claim that the plans were drawn incorrectly, etc. It is the general contractor's responsibility to work out appropriate adjustments for subcontractors who feel the errors were due to others and, therefore, are not included in their fixed price bids. These discussions are often on a relatively informal basis, because even though there may be only one set of contracts per job, the general contractors and the subcontractors take the long-term perspective of future working relationships.

This brief discussion of contracting in the home remodeling industry may have some important lessons for the design of an appropriate set of relationships to deal with the problems of biased selection. Currently, employers are in the situation of attempting to be their own general contractors, essentially hiring subcontractors (HMOs) on a fixed-price basis without very clear specifications as to what will be done. Employers are also taking on the responsibility for a major part of the coordination and risk by having conventional carriers work on a time and materials basis (experience-rated premiums). The employer is concerned that the subcontractors are avoiding some work that should be theirs (encouraging favorable risk selection), but this may just be the fault of errors in the plans (overall benefit design). Those workers who have substantial expertise in the trade (the conventional carriers) have no incentive to resolve problems with the subcontractors, because they are hired directly by the employer on a time and materials basis, so "fix-ups" (high-cost cases) generate additional revenue. In frustration, the employer demands detailed cost estimates from each of the subcontractors to substantiate their fixed price bids. Without a detailed understanding of the trade, however, it is almost impossible to compare the figures, especially when objective measures of craftsmanship (quality) are not available.

One obvious solution to this problem is to call in a general contractor who will take responsibility for hiring and paying the subcontractors. In the health insurance setting, consider a prime contractor who offers to calculate payments for not only the fee-for-service enrollees, but for all enrollees, whether they are in the conventional plan or in any of several HMOs or other alternative delivery systems. Actuarially, it is not too difficult to estimate the cost of covering such a population; the difficulty arises in dividing the pie among the various health plans. The triple options currently appearing on the market essentially do this, but the only HMO available is that controlled by the prime

carrier, a feature that is likely to be unacceptable to employees who have established long-standing relations with other HMOs. (This is analogous to hiring a general contractor who will do everything except tile work, hardwood floors, and real plaster walls, because he does not have those kinds of craftspeople available.)

Employers who have a substantial number of their workers in HMOs within a given area and are concerned about biased selection might request the development of proposals by a consortium of carriers and a prime contractor/negotiator to cover their entire population, while offering a reasonably wide choice of alternative HMOs. The proposals would have to include written agreements with HMOs accounting for some minimum proportion, e.g., 80 percent of the workers currently enrolled in HMOs. These agreements would have to outline the methods that will be used to adjust the payments to reflect differences in enrollee risk. The consortium would also include conventional fee-for-service plans or preferred provider arrangements to offer fee-for-service coverage. (Some employers use relatively "soft" preferred provider plans that allow the use of noncontracting providers without too high a penalty [Trauner 1983]. Others use preferred provider organizations with more stringent penalties, and simultaneously offer a conventional fee-for-service option.) While a triple-option plan could serve as the basis for such a proposal, competing HMOs may feel uneasy with a contractor/negotiator that is also the parent of one of the local HMOs. A more likely model might develop around a consultant group with expertise in risk measurement, benefits, and negotiation. The proposed role of the contractor/negotiator is much more active than that usually taken by benefits consultants and actuaries, in that it requires ongoing monitoring of the selection process and negotiation of corrections. Such consultants could then approach the local HMOs and conventional carriers to help design the appropriate negotiating processes to address biased selection.

It will be the goal of the contractor/negotiator to obtain for the employer the best allocation across health plans of the pool of contribution dollars. By reducing contributions to plans with low-risk enrollees and increasing payments to those with high-risk enrollees, net premium costs are borne more equitably by employees. There are likely to be a wide variety of approaches to accomplishing this reallocation; these will be discussed below. Contractor/negotiators will compete among themselves on the basis of expertise, track record, and ability to service

their clients, much as is the case with current benefits consultants. There will also be a cost tradeoff involved, in that adjustment schemes requiring enormous data collection efforts will be less attractive to employers than simpler, less costly approaches.

On the assumption that HMOs are both more efficient providers for equal-risk populations (see Manning et al. 1984) and tend to attract lower-risk enrollees (see the discussion above), the prime contractor is purposely faced with a dilemma. The costs for the fee-for-service enrollees will increase with the rising HMO market share unless it can adjust the payments to HMOs to reflect their anticipated favorable-risk selection. On the other hand, if a larger share of the market can be enrolled in HMOs with appropriate risk-adjusted contributions, the employee pool can have the same or better coverage with lower net premium cost. This will enhance the attractiveness of the contractor/negotiator's bid. Thus, the stage is set for more creative approaches to the measurement of selection because the contractor will have incentives both to increase HMO enrollment and to design improved risk-adjusted payments to compensate for biased selection.

Alternative Methods of Paying Subcontractors

Instead of focusing on whether the premiums set by HMOs are reasonable, the contractor/negotiator can concentrate on the design of appropriate methods of allocating the available contribution pool to reflect differences in risk. If an HMO or the conventional FFS carrier happens to enroll a disproportionate share of high-risk people, it should receive a comparably larger share of the contribution pool. The carriers are then free to set their own payment requirements, and what is not covered by their share of the contributions will be borne directly by the enrollee. (Note that the negotiator's role is merely to adjust employer contributions, not the premiums of each health plan, so there is less likely to be a problem of price fixing.) Unless the employer contribution is so generous that even after adjustment it exceeds usual premiums, this will create strong pressures to reduce premiums to attract or retain enrollees. Enrollees will find their net premiums reflecting the plan's efficiency, benefits, and coverage, but not their own risk factors or those of their co-enrollees, because differences in risk across plans will have been offset by adjustments to the contributions allocated to each plan.

The risk-weighted enrollment in a plan need not be derived by adding up objective risk factors for every enrollee. Risk factors could be derived from health status indices based on questionnaires administered to small but statistically reliable samples of the employer's enrollees in each plan. With such a scheme, subjective measures, such as mental health status and attitudes toward receipt of care, could also be included. Since individuals cannot gain by biasing their responses, answers are likely to be both valid and reliable, particularly if an independent survey organization does the data collection. As enrollments are generally rather stable from year to year (Neipp and Zeckhauser 1985), such surveys need not be done annually, although they could be updated with surveys of those who switch plans.

Survey measures are excellent at capturing differences in the average risk in groups of people across plans, but are very poor at picking up rare but catastrophically expensive cases. Yet, it is the small number of high-cost cases that often determine a plan's overall cost. As part of the negotiating process between the contractor/negotiator and the health plans, methods could be developed for tracking such cases, e.g., on the basis of diagnosis, and a system could be established for compensating for such costs. For example, the standard allocation of contributions could exclude costs for AIDS and newborns weighing less than 1,000 grams if lump sum payments to delivery systems for such patients were included as part of the negotiations. Such cases occur infrequently, but are very expensive and might be subject to selection bias. This type of adjustment is a compromise between fixed premiums and cost reimbursement (or time and materials). The fixed payment per particular type of case is similar to that used in the Medicare prospective payment system in that the provider (health plan) does not bear the risk associated with the occurrence of the event, but it is made sensitive to cost variations once an event is identified. The case need not be limited to hospital admissions; for example, verifiable diagnoses may be all that is necessary. To avoid rewarding providers with poor outcomes, a low birthweight case, for example, could have a schedule of per diem payments geared to birthweight, with payments ending at death or a fixed age. Furthermore, recall that contribution dollars are being reallocated, rather than costs being reimbursed. Thus, HMOs and other carriers will still have incentives to develop more efficient methods of treatment.

Prior to developing its bid, the potential contractor/negotiators

would have to approach the local HMOs and the employer's conventional carrier and attempt to negotiate with them the risk-adjustment factors. One of the simplest approaches would be to build upon the age-sex method used in Medicare's AAPCC. (While there are substantial limitations to the AAPCC, it is much more sensitive than the current approach used by employers, which has no risk adjustments for contributions at all.) The weights for each risk category might be set at the current fee-for-service level, the revenue requirements proposed by the HMOs, or some negotiated middle ground. Specific high-cost categories might be specified in advance, again with negotiated levels of compensation. It would probably take more time, experience, and the development of validated and mutually acceptable instruments to adapt surveys to estimate risk differentials across enrollee groups. Such approaches can be reserved for future contract periods.

The system is designed with certain checks and balances to encourage the development of better risk adjustments and discourage active selection. Efforts to encourage high-risk persons to disenroll from one plan, for example, by not having specialists congenial to that subgroup of patients, are likely to be noticed by the HMOs or the conventional carrier that is receiving such people during open enrollment periods. The recipients of such patient dumping have clear incentives to attempt to negotiate an increased contribution to offset the increased cost. As such dissatisfied disenrollees may have been postponing utilization until they are able to switch plans, it may even be appropriate to negotiate a side payment from the old carrier to the new carrier in such instances. Note that such payments should not be punitive, nor need they indicate any wrongdoing or even undesirable behavior. For example, one carrier might have a highly desirable alternative birth center that attracts patients from other plans after they decide to become pregnant. Such selection may be mutually beneficial, as long as all the parties receive appropriate compensation.

Several features of this method of deriving payments for plans are worth highlighting. First, the total employer contribution in an area can be fixed in advance. The level of the contribution, however, is not affected by actual medical care use or costs, nor is it affected by biased selection among plans within an area. While there may be differences in the risk factors of employees and dependents in different geographic areas, these differences cannot be manipulated by competing health plans. Second, plans that attract high-risk enrollees receive a larger contribution, while those attracting low-risk enrollees receive

a smaller contribution. Furthermore, the adjustment for these risk differentials among local competing plans is negotiated among the plans, which must figure out alternative ways of dividing a fixed pie. Third, if the risk adjustments are reasonably accurate, plans should be financially indifferent to their mix of enrollees; if the initial adjustments are inadequate, there are clear incentives for the "losers" to develop better measures. Plans may still choose to concentrate on certain types of enrollees, but the profitability of each type will be essentially equalized. Fourth, the net enrollee premium, which is total cost less risk-weighted contributions per enrollee, is the same for all enrollees in any given plan. Thus, high- and low-risk people in the same plan pay the same net premium. Net premiums will differ across plans, however, reflecting their relative efficiency in providing coverage for their enrollees. It is conceivable that the risk-adjusted employer contribution could exceed a plan's cost, in which case the differential could be made up in increased benefits. Finally, appropriate adjustments for biased selection may reduce the pressures for increases in the employer contribution.

Implementation Issues

The role envisioned for the prime contractor/negotiator would enlarge substantially the task currently undertaken by some benefit consultants. It clearly goes well beyond benefit design and actuarial evaluation of bids, yet it draws upon some of the same skills. While the addition of an intermediary will add some costs to the employer's health benefits program, the adjustment of contributions offers substantial potential for obtaining a better allocation of the available funds and a reduction in the pressure to increase contributions. It can also pressure HMOs and other plans to compete on the basis of efficiency rather than selection.

In theory, enrollment, risk factor calculations, and premium setting should be carried out simultaneously, but this is an administrative impossibility. This means that carriers will have to make some guesses as to their enrollment mix, based upon expected premium levels. As part of the negotiations, one could easily imagine adjusting the contributions after the fact—but holding enrollee premiums constant—with gains or losses absorbed for a year by the plans. While this

initially seems risky, it is really not that different from current situations in which an insurer quotes a premium in advance without knowing future enrollment patterns and costs. In practice, year to year enrollment shifts are relatively small and, as long as there is the expectation of continued contracting in future years, most carriers will be willing to bear the risk.

Employers would have to develop a process for choosing the contractor/negotiator in each area. The main technical criteria would be their expertise and approach to the negotiated agreements with most or all of the HMOs and alternative delivery systems currently enrolling the company's employees in the area. It would be preferable not to have negotiators withdrawing after a year because the carriers found the risk adjustment formulas unreasonable. Likewise, negotiators would probably expect to recoup their start-up administrative costs over several years, so they would not be too willing to walk away from the contract. Potential contractor/negotiators that exclude too many of the available HMOs and alternative delivery systems will have less attractive bids.

It is desirable that a separate contract be let with an outside organization to focus on quality evaluation to make sure that carriers are not achieving lower costs by skimping on quality. As with risk assessment, quality evaluation can shift from case by case review to monitoring patterns of care across large numbers of enrollees. The new quality assessment will not have to deal with both cost containment and quality-review functions, because the carriers will be focusing on cost containment. To maintain appropriate checks and balances, it should be independent of the carriers. Since it is unlikely that delivery systems will treat enrollees from various employers differently, the quality assessments can be done on small samples of their overall enrolled population. Such assessments can include surveys of enrollees concerning accessibility to providers, waiting time, and perceived quality. These surveys could be combined with risk-status surveys, or they could be independent, such as those undertaken by the Center for the Study of Services (1982). Detailed medical audits could also be undertaken to evaluate process and outcome characteristics. Quality assessments of each health plan should be made public to encourage informed choice, and employers should maintain the option of excluding plans with unacceptably poor quality.

The impact on enrollees is designed to be small. In areas with few

HMOs the current system would remain in place. In areas with substantial HMO enrollment, the basic fee-for-service package would still be available, possibly with reduced premiums and copayments. (This could occur if the improved risk adjustments recapture some of the funds otherwise accruing to the HMOs.) Beneficiaries currently enrolling in HMOs may find some reductions in their benefits or increased net premiums if their plans had been benefiting from favorable selection. If their plans had offered additional benefits and low premiums because of their improved efficiency, there should be no change.

The proposal may engender a negative reaction from some HMOs. In particular, those plans that are benefiting from favorable selection under the current approach would stand to lose. There may be some HMOs that are unable or unwilling to reach an agreement with potential negotiators. To safeguard their enrollees, yet not hold the negotiator hostage to their demands, there should be a system for direct enrollment in noncontracting HMOs that meet the employer's quality standards. Such plans would be excluded from the usual open-enrollment process. They would have to bear the costs of direct marketing, would have to quote premiums in advance, and would receive employer contributions with the same risk adjustments as contracting plans. This creates strong incentives for HMOs to reach an agreement on selection-adjustment rules with at least one negotiator. On the other hand, potential negotiators will have incentives to reach a compromise with the HMOs, because their bid will be more credible if they can include more HMOs.

There are some important long-term advantages in this system for HMOs. Efficient HMOs may welcome risk-adjusted payments that will still allow them a competitive advantage based on efficiency, but will force out of the market inefficient plans that merely skim off low-risk enrollees. The current system of fixed premiums is open to charges that HMO profits are excessively high because of selection. This fuels the argument that the premium should be arbitrarily reduced or that employers should have access to HMO cost and pricing data. While the new process certainly imposes additional administrative costs on HMOs and is likely to reduce employer contributions for their enrollees, it must be contrasted not with the past system of fixed contributions and simple community rating, but with the likely future. The more aggressive negotiating stance of some employers suggests the future may involve separate, detailed negotiations with

each large employer. The creation of contractor/negotiators who will have as their clients a large number of employers in an area offers the potential for HMOs to face a manageable number of risk-adjustment schemes.

Many HMOs have proven themselves to be cost-effective providers of care. However, there is also substantial evidence that their structure results in some biased selection, and there are suspicions that some plans engage in active selection and aggressive pricing. One need not look for villains, however. The current forms of premium setting and setting employer contributions are unlikely to offset selection bias sufficiently regardless of the causes. If selection is not appropriately offset, the system will become increasingly unfair and expensive, eroding its viability and cost-containment advantages. If we can design a system that incorporates countervailing checks and balances to internalize risk and simultaneously create methods to measure selection effects, we may be able to reap the benefits of more cost-effective delivery systems while protecting enrollees.

References

- Anderson, G., and J. Knickman. 1984. Adverse Selection under a Voucher System: Grouping of Medicare Recipients by Level of Expenditure. *Inquiry* 21(2):135–43.
- Anderson, G.F., E.P. Steinberg, J. Hollaway, and J.C. Cantor. 1986. Paying for HMO Care: Issues and Options in Setting Capitation Rates. *Milbank Quarterly* 64(4): 548–65.
- Arrow, K. 1963. Uncertainty and the Welfare Economics of Medical Care. *American Economic Review* 53(5):941–73.
- Beebe, J., J. Lubitz, and P. Eggers. 1985. Using Prior Utilization Information to Determine Payments for Medicare Enrollees in Health Maintenance Organizations. *Health Care Financing Review* 6(3):27–38.
- Berki, S.E., and M.L. Ashcraft. 1980. HMO Enrollment: Who Joins and Why: A Review of the Literature. *Milbank Memorial Fund Quarterly/Health and Society* 58(4):588–632.
- Buchanan, J.L., and S. Cretin. 1986. Risk Selection of Families Electing HMO Membership. *Medical Care* 24(1):39–51.
- Center for the Study of Services. 1982. Hospital Inpatient Care. *Bay Area Consumers' Checkbook* 1(2):2–19.
- Chavkin, D.F., and A. Treseder. 1977. California's Prepaid Health

- Plan Program: Can the Patient be Saved? *Hastings Law Journal* 28(January):685-760.
- DiBlase, D. 1986. HMO Proposal Would Affect Employers' Contributions. *Business Insurance* (March 3):2-7.
- Fritz, D., and D.V. Repko. 1986. A Blueprint for Forging New HMO Relationships. *Business and Health* 3(8):38-39.
- Goldberg, V.P. 1976. Some Emerging Problems of Prepaid Health Plans in the Medi-Cal System. *Policy Analysis* 1(1):55-68.
- Hornbrook, M.C. 1984. Examination of the AAPCC Methodology in an HMO Prospective Payment Demographic Project. *Group Health Journal* 5(1):13-21.
- Jackson-Beeck, M., and J.K. Kleinman. 1983. Evidence for Self-selection among Health Maintenance Organization Enrollees. *Journal of the American Medical Association* 250(20):2826-29.
- Kidder, T. 1985. *House*. Boston: Houghton Mifflin Co.
- Luft, H.S. 1981. *Health Maintenance Organizations: Dimensions of Performance*. New York: Wiley-Interscience.
- . 1984. On the Use of Vouchers for Medicare. *Milbank Memorial Fund Quarterly/Health and Society* 62(2):235-48.
- Luft, H.S., J.B. Trauner, and S.C. Maerki. 1985. Policy Implications of Biased Selection in Health Insurance: Adverse Selection. In *Advances in Health Economics and Health Services Research*, ed. R.M. Scheffler and L.F. Rossiter, 197-229. Greenwich, Conn.: JAI Press.
- Manning, W.G., Jr., A. Leibowitz, G.A. Goldberg, W.H. Rogers, and J.P. Newhouse. 1984. A Controlled Trial of the Effect of a Prepaid Group Practice on Use of Services. *New England Journal of Medicine* 310(23):1505-10.
- Manning, W.G., Jr., J.P. Newhouse, and J.E. Ware, Jr. 1982. The Status of Health in Demand Estimation; or, Beyond Excellent, Good, Fair, and Poor. In *Economic Aspects of Health*, ed. V.R. Fuchs, 143-84. Washington: National Bureau of Economic Research.
- Neipp, J., and Zeckhauser, R. 1985. Persistence in the Choice of Health Plans. In *Advances in Health Economics and Health Services Research*, ed. R.M. Scheffler and L.F. Rossiter, 47-72. Greenwich, Conn.: JAI Press.
- Pauly, M. 1974. Overinsurance and Public Provision of Insurance: The Roles of Moral Hazard and Adverse Selection. *Quarterly Journal of Economics* 81(1):44-62.
- Peres, A., and Stansbury, J., Jr. 1986. Illinois Bell Finds Negotiation Approach Works Well with HMOs. *Business and Health* 3(8):40.
- Schuttinga, J.A., M. Falik, and B. Steinwald. 1985. Health Plan Selection in the Federal Employees Health Benefits Program. *Journal of Health Politics, Policy and Law* 10(1):119-39.

- Sutton, H.L., Jr. 1986. Community Rating: An Historical Perspective. *Business and Health* 3(8):41-44.
- Thomas, J.W., R. Lichtenstein, L. Wyszewianski, and S.E. Berki. 1983. Increasing Medicare Enrollment in HMOs: The Need for Capitation Rates Adjusted for Health Status. *Inquiry* 20(3):227-39.
- Trauner, J.B. 1983. Preferred Provider Organizations: The California Experience. San Francisco: Institute for Health Policy Studies.
- Welch, W.P. 1985. Medicare Capitation Payments to HMOs in the Light of Regression towards the Mean in Health Care Costs. In *Advances in Health Economics and Health Services Research*, ed. R.M. Scheffler and L.F. Rossiter, vol. 6, 75-96. Greenwich, Conn.: JAI Press.
- Wilensky, G.R., and L.F. Rossiter. 1986. Patient Self-selection in HMOs. *Health Affairs* 5(1):66-80.
- Winsberg, G.R. 1985. The Hidden Costs of HMOs. *Business and Health* 3(2):18-21.

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