

Third-Party Payments for New Health Professionals: An Alternative to Fractional Reimbursement in Outpatient Care

STUART O. SCHWEITZER, PhD, and JANE CASSELS RECORD, PhD

IN HEALTH MANPOWER POLICY, as in life, sins of oversimplification are easily committed. It would be difficult to find a better illustration of this maxim than the recent proposals to use fractional reimbursement for services of new health professionals (NHPs) as a stratagem to contain the costs of medical care.

The Issue

The rationalization for fractional reimbursement—paying for NHP services at less than the fee allowable for physician services—as a way of containing costs is straightforward enough. The problem is its substantial inconsistency with another Federal policy objective: namely, increasing the use of physician's assistants (PAs), Medexes, nurse practitioners (NPs), and other new health professionals in the delivery of outpatient services. It is seldom possible for a single incentive arrangement to serve two policy goals equally well, even when the goals do not conflict. In this case, it seems certain that reduction in the per unit cost of primary care could be achieved by fractional reimbursement only at considerable expense to the market demand for NHPs.

Proposals to pay for the outpatient services of NHPs at less than 100 percent of the fees allowed physicians by Medicare, Medicaid, and private insurers grew out of a well-known sequence of developments. By the early 1970s, evidence had proliferated that many physicians were receiving a windfall from hiring NHPs to perform services for Medicare patients at lower costs to the physician than the rates at which the physician was reimbursed. The General Counsel of the Social Security Administration (SSA) ruled that the original Medicare Act did not permit reimbursement for services performed by NHPs if those services were typically performed by a physician. This position was confirmed in the Social Security Amendments of 1972. About half the States have adopted similar reimbursement policies for their

Medicaid programs, and many private insurers have taken the same approach (1).

Meanwhile, back at the medical schools, nursing schools, and other training sites, NHP programs have continued to turn out graduates by the thousands. By the end of 1976, about 12,000 NHPs had finished training programs (1a), and the new Health Professions Educational Assistance Act of 1976 had authorized additional millions of dollars for the production of NHPs over the succeeding 2 years (2). In these federally financed training programs, embryonic NHPs were being prepared to provide precisely the kind of outpatient services which the Federal Government and other third-party payers had declared nonreimbursable unless provided by a physician. In fact, the overriding purpose of the training programs, as enunciated in successive policy statements, was to turn out "physician extenders" who could perform some of the tasks customarily performed by MDs. (This discussion is confined to the outpatient sector, but another contradiction in Federal policy is worth noting. A more generous reimbursement policy for NHP services in inpatient settings strengthens the incentive of hospitals to hire NPs and PAs—this, despite recent national policy

□ *Dr. Schweitzer is an associate professor, School of Public Health, University of California, Los Angeles, and research associate, Human Resources Research Center, University of Southern California. Dr. Record is senior economist, Kaiser Foundation Health Services Research Center, Portland, Oreg. A modified version of the paper was presented at the "Symposium on Nurse Practitioners and Physicians Assistants: a Research Agenda," held at Airlie House, Va., June 21-22, 1977.*

Tearsheet requests to Dr. Record, Health Services Research Center, 4610 Southeast Belmont St., Portland, Oreg. 92715.

initiatives that have emphasized the need to shift resources to primary care.)

The two horns of the reimbursement dilemma in outpatient health care thus become evident. Although there are nonmonetary reasons for employing a PA or NP—for example, the physician may want more leisure or relief from tedious procedures—the profit motive cannot be dismissed as minor. The chance to “make money” on an NHP has been pointed out to prospective physician employers by administrators of NHP training programs; in a series of site visits from 1971 to 1973, some administrators mentioned to Record that this factor was one of the selling points used with prospective employers. That some physicians were quick to see the potential is suggested by evidence compiled by the SSA, the Congress, and others involved in reimbursement. Hence setting reimbursable fees for NHPs’ services at 100 percent of the physician rates might be the best policy choice if raising the demand for these new health professionals were the only goal. The contribution of that policy to cost control, however, would be nil. If, at the other extreme, the present policy of zero reimbursement were continued, particularly if it were to be adopted uniformly by all insurers, public and private, the profit windfall on NHPs would be eliminated in health care paid for by third parties; but because the portion of the nation’s health bill covered by public or private insurance is so large—at least two-thirds—the monetary incentive to hire NHPs would be drastically curtailed.

To set the reimbursable fraction between zero and 100 percent would result in tradeoffs between cost containment and NHP utilization in this essentially zero-sum situation. The tradeoffs are spelled out in the next section, and in the final section of the paper we present an alternative approach to reimbursement, an approach which does not require that cost containment be purchased at the expense of NHP utilization.

Tradeoffs under Fractional Reimbursement

Before calculating the tradeoffs, one must have estimates of the substitutability of NHPs for MDs and of the present supply of new health professionals.

Substitutability. The substitutability of NHPs for physicians depends on three variables: the percentage of an MD’s workload that can safely be delegated, the relative productivity of the PA and the MD, and their relative cost. Although the literature on these phenomena is far from lush, some fairly

careful estimates have been produced. Record and her colleagues at the Kaiser Foundation Health Services Research Center found in a recent study that services deemed appropriate for PAs by the Oregon Region of Kaiser-Permanente constituted about 80 percent of the system’s office visits for adult primary care (3). There are similar findings in other studies, although Steinwachs (4), Scheffler (5), and Smith (6), using a different approach, made somewhat lower estimates.

Going beyond delegability to the issue of productivity, we note that a comprehensive approach to PA productivity in the Kaiser-Permanente study of inputs resulted in an estimate that it would take 100 percent of a PA to replace 76 percent of a physician, assuming the equation of PA and MD workweeks. This computation included the assumption that 7.8 percent of a physician is required to provide general supervision for each PA (in general instruction, chart review, admission of the PA’s patients to the hospital, and so on). Also included was the time the PA supervisors spent in consultation on specific office visits. These discrete physician inputs were estimated at less than 2 percent of an MD’s total time.

Whether delegation is economically efficient depends additionally upon the relative costs of the NHP and the MD to the delivery system. Although adequate cost analysis would include data on fixed as well as variable costs, evidence from the Kaiser-Permanente and other studies suggests that fixed costs may be ignored with reasonable safety because they appear to be substantially the same for the new health professional and the physician. Variable-cost calculus ought to include fringe benefits as well as salaries, plus any other items that produce different system outlays for NHPs and MDs. Unfortunately, we have national data only for salaries or basic incomes.

The best estimate of NHP salaries is contained in a study completed in 1976 under a contract with the Department of Health, Education, and Welfare (7). In the following tabulation of 1975 mean salary estimates for physician extenders (PEs), the weighted average comes to \$14,068 per year:

<i>Type of training</i>	<i>Salary</i>	<i>Percent of total PEs¹</i>
Nurse practitioner, masters degree ..	\$14,900	3.6
Nurse practitioner, certified	13,500	53.4
Physician’s assistant	14,800	33.7
Medex	14,200	9.4
Total		100.0

¹ Total does not add to 100 percent because of rounding.

A DHEW nationwide projection of physicians' annual basic incomes was made by (a) inflating the figures of a 1973 DHEW study to include the rate of increase in the "physicians' fees" component of medical care prices in the Consumer Price Index for 1974-75 plus 1975-76 and then (b) dividing the rate by two (8). The average income was \$61,318. The survey included both specialists and primary care physicians. Because specialists typically receive higher incomes than primary care physicians, a \$14,068 to \$61,318 (.23) ratio would be biased downward, overstating the NHP to MD cost differential in primary care, which is a large portion of total outpatient services. In the Kaiser-Permanente study, the differential for PAs and the primary care MDs in the Department of Medicine was estimated to be \$19,576 to \$53,593 (.37) for 1975. The figures included fringe benefits and, for the PA, a cost of \$4,196 (7.83 percent of a physician) for general supervision.

We have confined the discussion to delivery costs (costs to the employer) because the focus of the paper is upon potential cost savings in alternative reimbursement arrangements, and third-party reimbursement is made for production costs only. However, a comprehensive calculus of total cost savings from the use of NHPs should include differential training costs for NHPs and MDs. The few data available suggest that because both NHPs and MDs are trained largely at public expense and the respective total educational outlays are so disparate, a shift of all delegable services to NHPs would provide substantial sums of additional tax relief per year.

Supply of NHPs. Earlier, we cited a figure of 12,000 as the number of graduates produced by NHP training programs by the end of 1976. However, not all graduates are currently delivering outpatient care, or inpatient care either. There are no adequate current estimates of the percentage of total graduates who are not in the labor market or are unemployed, or if employed, are working in teaching, research, or other pursuits not primarily concerned with the delivery of health services.

An approach to the data. There are no hard statistics for the variables in substitutability and supply of NHPs just discussed. In that circumstance it is wise to take a cautious approach in selecting numbers for each parameter. Thus, we selected .70 (rather than .76) as the substitution ratio and .30 (instead of .23) as the MD to NHP cost ratio, and we chose 8,000 rather than 12,000 as the present supply of NHPs. This approach should give a relatively con-

servative estimate of the cost-containment potential of NHP utilization. One should remember that the primary purpose of the model that follows is to produce comparative, rather than absolute, estimates of tradeoffs between cost containment and NHP utilization.

Estimating the tradeoffs. Fractional reimbursement for NHP-performed services can be described generally by saying that reimbursement for the i^{th} NHP service, R_i , will equal the rate claimed by MDs, R_i^{MD} , multiplied by an adjustment factor, r . Thus, $R_i = rR_i^{MD}$ where $0 < r < 1$.

One-hundred-percent reimbursement for an NHP service would occur when $r = 1$. Since 1971 r has been set at zero, so that $R_i = 0$ for NHP-provided services.

The actual costs to the physician employer for having an NHP provide some services can be defined as direct wages plus supervisory costs. If one assumes that the NHP is only 70 percent as efficient as an MD, then while the wage cost for the MD service would be W^{MD} , the NHP cost would be W^{MD} multiplied by the ratio of NHP salary to MD salary divided by 70 percent. Because the NHP's rate of substitution for an MD is only .70, the salary differential must be substantial to make the NHP cost effective.

If we call the wage rate for the NHP (per unit of service) W^{NHP} , then

$$W^{NHP} = W^{MD} \left(\frac{Sal^{NHP}}{Sal^{MD}} \right) \frac{1}{.70}.$$

Let us assume an NHP to MD salary ratio of .30. Thus,

$$W^{NHP} = W^{MD} \left(\frac{.30}{.70} \right) = W^{MD} (.43).$$

This equation shows that an NHP reimbursement rate of 43 percent of the MD's rate would permit the physician to cover the costs of the NHP in performing services. Thus, other things being equal, a reimbursement rate below 43 percent of the physician charge would not lead physicians to delegate services to NHPs.

However, if we relax the assumption of homogeneous services performed in a practice, another possibility appears, which is more realistic but more difficult to analyze. A physician might well decide to delegate those services that do not require the full extent of his expertise, even if that choice meant losing money on those services, if the physician could earn substantially more through "specializing" in

the more complex services where the MD is most productive. In such circumstances, some delegation would occur even when $r < 0.43$. The physician's productivity might be increased still further by enlarging the practice and hiring additional NHPs, so that they performed all of the delegable services, and the MD's own time was fully booked with the more difficult (and financially more rewarding) services. The result might be a higher net income for the practice even though NHP services were performed at a loss. These remarks illustrate the complexity of estimating the extent of delegation under alternative reimbursement formulas. We have shown how even a zero reimbursement rate for NHPs might generate some delegation, though the incentive would tend to be weaker for any r less than 43 percent.

What about the other extreme of the reimbursement continuum? Before discussing 100 percent reimbursement, we wish to distinguish between (a) substituting NHPs for presently practicing physicians and (b) adding NHPs rather than MDs to the present body of health care providers. Because assumption (b) seems more realistic, we shall measure the effects of NHP substitution as *additions* to present medical services rather than as *displacements* of MDs presently in service. Thus, in our approach, cost savings become the difference between what the added services would cost if performed by NHPs and their cost if performed by physicians. Cost here refers to reimbursement outlays by third-party payers.

If a 100 percent reimbursement rate caused physicians (and institutions) to employ all 8,000 NHPs in outpatient care, the supply of medical services (services by MDs and NHPs) in that sector obviously would increase. One way of expressing the increase is as a change in the "effective supply of physicians" (that is, in the supply of medical services by MDs and NHPs, with NHPs viewed as "physician extenders"). If we use 1976 data as the base,

$$\frac{\Delta \text{ MD}}{\text{ MD}} = \frac{(\text{substitution ratio}) (\text{number of NHPs})}{\text{number of MDs}}$$

$$= \frac{(0.70) (8,000)}{303,650}$$

= 1.8 percent increase in the supply of medical services.

Of course, all of the 303,650 physicians practicing in 1976 were not in (or not exclusively in) the outpatient sector. We use that number because we do not have data on physicians (full-time equivalents)

in outpatient care. Total expenditures for physicians' services were \$26.4 billion in 1976. The 1.8 percent increase that the 8,000 NHPs would add to the supply would make possible another \$476 million in services. Because we are concentrating on outpatient services that would be subject to third-party reimbursement under a fractional reimbursement policy, we shall assume for analytical purposes that all 8,000 NHPs would be employed in that health care sector. The next question then becomes: What portion of the potential increase of \$476 million in services would be evoked by various levels of r below 100 percent? Figure 1 diagrams the potential increase in medical services as a function of the reimbursement rate, r .

Assuming zero delegation of services, where $r = 0$, implies that the delegation path passes through the origin, point O, in figure 1. As r increases, either of two developments can occur. If physicians are reluctant to delegate at all unless they at least break even on the NHP, delegation will not occur until $r = 43$ percent (point A). If physicians are aware of the profit potential of specialization, then delegation (and hence the generation of additional expenditures for medical services) might increase uniformly up to the limit of full substitution.

The specific level of expenditures produced by NHP delegation is more complex. The three points O, A, and B are clear, with B representing 100 percent reimbursement for NHPs' services. The maximum impact on reimbursement outlays for medical services (if one assumes that all NHP services are delivered in the medical services sector, as stated earlier) is \$476 million. The path of the expenditure curve, however, will almost certainly lie below the straight-line segments OB and AB. The actual shape will lie below and will be concave upward, because the expenditure increase is a function of both delegation and r . Figure 2 illustrates the two expenditure paths.

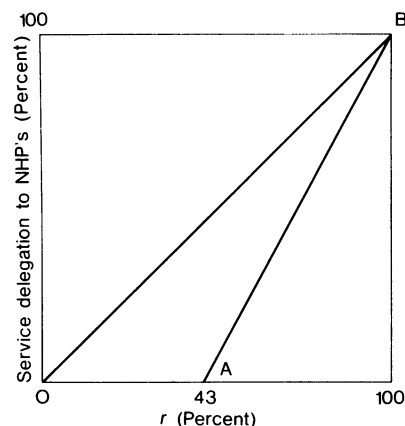


Figure 1

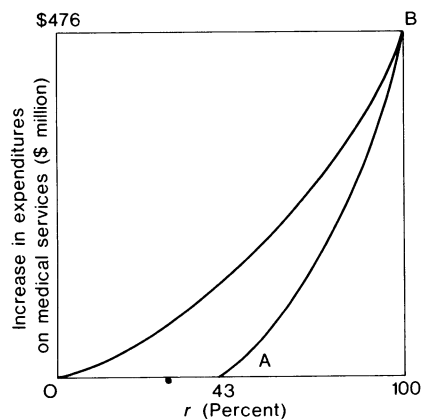


Figure 2

The variables can be shown in tabular form also. In table 1, assumption I refers to the continuous substitution path (segment OB in figures 1 and 2), and assumption II refers to the "threshold substitution" path (segment OAB in figures 1 and 2). The table shows, for both assumptions, the impact of changes in r on third-party payments for additional services by NHPs. Also shown are the payments those services would have required had they been performed by MDs (at 100 percent reimbursement) and the cost savings achieved by having the medical services performed by NHPs instead of by MDs.

It is essential to stress that although we have discussed changes in expenditure levels that would accompany the employment of NHPs in outpatient care, NHP employment is not the generative force here. Expenditures for medical services have been rising, apart from inflation, in response to increases

in the demand for services. The issue is whether the increased demand will be supplied by using MDs exclusively or by substituting NHPs for MDs in relatively simple services. Decisions about how many additional MDs and NHPs should be produced in the nation's training programs are a matter of national policy, but decisions about whether to use an MD or an NHP to provide additional services are made typically by physicians at the medical practice level. The preceding discussion and table 1 attempt to demonstrate (a) the effects of changes in the NHP reimbursement rate on physicians' decisions to hire or not to hire NHPs and (b) the cost savings that would result from having NHPs rather than MDs handle whatever additional services are provided.

The expenditure and cost functions in table 1 illustrate the underlying paradox of fractional reimbursement: As the reimbursement rate increases, so does the monetary incentive to employ NHPs and make full use of their capabilities; but simultaneously the cost-saving potential per unit of delegated service declines. As shown in the table under assumption I, total cost savings rise to a peak at $r = 40$ percent. Above that reimbursement rate, total savings fall because the sequential increases in NHPs and delegated services are more than offset by the decline in per-unit cost savings as r rises. Finally, at a 100 percent reimbursement rate, all 8,000 NHPs are employed in delivering medical services, but there is no cost saving at all because the reimbursement rate for NHPs is the same as for physicians. A similar situation can be observed under assump-

Table 1. Increases in total medical service expenditures and resultant cost savings from use of NHPs at varying rates of fractional reimbursement (millions of dollars)

Fractional NHP reimbursement rate (percent) r	Assumption I			Assumption II		
	Increase in expenditures at NHP rate ¹ (r)	Increase in expenditures at MD rate ² (100 percent)	Cost savings ³	Increase in expenditures at NHP rate ⁴ (r)	Increase in expenditures at MD rate ⁵ (100 percent)	Cost savings ³
0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0
10	4.8	48.0	43.2	0.0	0.0	0.0
20	11.0	55.0	44.0	0.0	0.0	0.0
30	42.8	142.7	99.9	0.0	0.0	0.0
40	91.6	229.0	137.4	0.0	0.0	0.0
50	119.0	238.0	119.0	33.2	66.4	33.2
60	171.4	285.7	114.3	97.1	161.8	64.7
70	233.2	333.1	99.9	179.9	257.0	77.1
80	304.6	380.8	76.2	281.8	352.3	70.5
90	385.6	428.4	42.8	402.7	447.4	44.7
100	476.0	476.0	0.0	476.0	476.0	0.0

¹This column is line OB in figure 2.

²This column is line OB in figure 1.

³Difference between increase in expenditures with NHPs performing the services and what increase would have been had the additional

services been performed by physicians:

$$\frac{100}{r} (\text{increase}) - \text{increase.}$$

⁴This column is line OAB in figure 2.

⁵This column is line OAB in figure 1.

tion II, although total cost savings peak there at $r = 70$ percent rather than at $r = 40$ percent.

Thus, whereas the goal of increased access (or certainly an increased supply of medical services) is well served by reimbursement rates of 90 or 100 percent, the same is not true for the goal of cost containment or cost savings. Correlatively, low reimbursement rates ill serve access but perform reasonably well with respect to cost savings. Under assumption I, the increase in services at 40 percent, for example, is less than a fourth of the increase at 90 percent (\$91.6 million versus \$385.6 million), but the cost saving is more than twice as high (\$99.9 million versus \$42.8 million). The reason, of course, is that although the increase in delegated services at the 40 percent reimbursement rate is relatively small, the per unit saving from using NHPs rather than MDs is very large—60 percent. These figures give clear evidence of the conflict, which inheres in fractional reimbursement, between the national goals of increased access and cost containment.

Before discussing alternative schema, we call attention to the fact that in the foregoing computations, the limit on service increases resulting from NHP employment (\$476 million) was set by the estimated supply of NHPs rather than by the level of delegability or the economic efficiency of NPs and PAs. As stated earlier, the proportion of delegable services in primary care has been estimated to be as high as 80 percent of the office visits in adult primary care. A shift of that magnitude would require NHPs greatly in excess of 8,000. In short, the limiting factor in NHP substitution for MDs, at present and for the immediate future, appears to be the supply of NHPs rather than the outer limits of technical or economic substitutability.

An Alternative Reimbursement Proposal

Cost containment was not a primary concern of those who pioneered NHP training programs. Their main purpose was to relieve overworked MDs and to improve access to care for persons in underserved areas. The programs were creatures of their time. They originated in the middle 1960s, when the greatest challenge to the health care industry was generally perceived to be the production of enough providers to meet an accelerating demand for services. Cost sensitivity bloomed later. When it did, national policymakers began to cast about for a way to serve both needs simultaneously. Unfortunately, the wrong instrument—fractional reimbursement—seems to have been selected by many participants in the policy debates. We propose another approach.

Service-based rather than provider-based reimbursement. The basic fallacy in fractional reimbursement is its concentration on the provider rather than on the service provided in determining the allowable fee. There was a time when physicians operated X-ray machines. Today there is a general consensus that nonphysician technicians are thoroughly capable of that task. If an MD insisted on taking X-rays rather than delegating the job, few would deny his or her right to do so; but few would concur if the physician insisted upon a higher reimbursement rate for films he or she took. In laboratory and X-ray procedures, price typically attaches to the service rather than to the server. Why not apply the same principle to services performed by NHPs? Why should an MD be paid more than an NHP for removing a wart or treating an uncomplicated upper respiratory infection? A major objection to fractional reimbursement is its suggestion of a cutrate price for an inferior service.

To say, however, that an NHP should not receive a lower fee than a physician gets for performing a delegable service is not to suggest that delegable and nondelegable services should carry the same price. At this point it may be useful to look at alternative pricing approaches more closely. To choose the service rather than the provider as the focus for pricing is to raise the question of which service unit is most appropriate. Essentially, what do providers provide—a block of time or the content of that time?

Economists have been programed to think neatly about all matters, and it would be nice if the empirical world were so accommodating as to behave neatly. Alas, not even the health care industry indulges the economist's preference in this respect. Although prices sometimes attach to specific tasks or procedures, there is a tendency, particularly in primary care—where NHPs are supposed to be concentrated—to subsume a variety of services and substantially varied inputs of provider time under something called an office visit (OV), to which a single price adheres. True, an unusually complicated or time-consuming procedure performed during an OV may cause the physician's bill to be larger. Yet, physicians commonly have a basic OV price, which may apply to services for very simple or for rather complex complaints. Because in most cases the level of skill, and certainly the level of judgment, is presumably greater for complex complaints, their treatment ought to carry a higher price.

It is likely that in setting the fee for an office visit, a physician takes the skill or judgment range into account. Suppose that for a primary care physician,

80 percent of the OV's are for simple complaints that an NHP could handle. If the MD produces 100 office visits per week and charges a flat fee of \$10, the gross revenue is \$1,000. The same total receipts could be obtained by charging \$9 for the 80 simple problems and \$14 for the 20 complex ones (\$720 plus \$280).

The essence of our reimbursement proposal is that third-party payers would differentiate simple and complex morbidity situations, which translate into NHP-appropriate and physician-requisite—or delegable and nondelegable—office visits, with disparate allowable fees. In our hypothetical example, the OV's for complex problems might be priced for reimbursement at \$14. The reimbursable rate for simple cases, however, could be set at, say, \$7 to reflect their appropriateness for personnel whose costs are lower. Thus, 100 OV's would be bought by the Federal Government or other insurers for a total of \$840 (\$560 plus \$280) rather than \$1,000.

In this manner the Government or private insurer might capture some or all of the cost-containment potential in using NHP's. The \$160 saved would serve tax-containment purposes for Medicare or Medicaid and premium-containment purposes for private insurance. In this example, the annual savings might be \$8,000 (\$160 times 50 weeks). Multiplied by hundreds of thousands of physicians, the potential savings rise to millions, even billions, of dollars. Hence the cost-containment potential is highly significant.

At the same time, the two-price approach with prices differentiated for services rather than for providers incarnates a substantial incentive for employing NHP's to perform the simple services. No physician would be forced to delegate such procedures, but the inability of MD's to claim more than

\$7 for handling a simple OV would offer a strong inducement to replace themselves at that level so that they could concentrate on more highly priced services. In other words, physicians could ill afford to "hire themselves" to perform relatively noncomplex services, at a high cost in foregone income, when they could hire an NHP for much less. Therefore cost relief for taxpayers and consumers would not require, under the proposed policy, a tradeoff in reduced NHP utilization.

Table 2 shows the consistency of cost containment and NHP utilization in our approach. In the first of the columns under "Service-based reimbursement," it is assumed that all of the 8,000 NHP's would be employed, because of the incentives already discussed, and that they would increase total services by 1.8 percent, or \$476 billion, as valued by the rate of reimbursement originally used for physician services. Even if the rate for noncomplex services was cut to 50 percent of the current physician rate, NHP's would be hired to provide those services if, as was suggested earlier, the reimbursement rate covered their cost; but the full employment of NHP's, and the consequent increase in services, would not be achieved at the expense of the cost-containment goal, because cost savings of \$238 million would occur.

Table 2 presents comparatively the levels of medical services and cost savings that would be produced by three reimbursement systems. As is shown in the first section of the table, if the 1.8 percent increase in services had to be provided by physicians at 100 percent of the current rate, the services would be called forth only by sacrificing the goal of cost containment completely, because the cost saving would be zero. Under the fractional reimbursement approach, as set forth in the second section of table 2,

Table 2. Production of medical services, expenditures, and cost savings under 3 reimbursement systems (millions of dollars)

Reimbursement rate (percent) <i>r</i>	MD reimbursement			NHP reimbursement at a fraction of MD rate ¹			Service-based reimbursement ²		
	Quantity of services produced, valued at MD rates (100 percent)	Actual expenditures	Cost savings	Quantity of services produced, valued at MD rates (100 percent)	Actual expenditures	Cost savings	Quantity of services produced, valued at MD rates (100 percent)	Actual expenditures	Cost savings
50	\$152.2	\$ 76.1	\$76.1	\$476.0	\$238.0	\$238.0
60	223.8	134.3	89.6	476.0	245.6	230.4
70	295.1	206.6	88.6	476.0	333.2	142.8
80	366.6	293.2	73.4	476.0	380.8	95.2
90	437.9	394.2	43.8	476.0	428.4	47.6
100	\$476.0	\$476.0	\$0.0	476.0	476.0	0.0	476.0	476.0	0.0

¹ Figures are the means of assumptions I and II in table 1.

² *r* refers to percentages of original MD reimbursement rate at which

both MD's and NHP's would be reimbursed for these NHP-appropriate services.

utilization of NHPs would rise only at the expense of cost savings for every r above 50 percent.

Note that at each level of r below 100 percent the cost saving is substantially greater under service-based reimbursement than under fractional reimbursement, even though the level of services evoked in each instance is greater under service-based reimbursement.

The service-based reimbursement strategy would have still further advantages. It would remove the stigma that inheres in two prices for the same service: one price for NHPs and a higher price for MDs. The two-price approach that fractional reimbursement would require suggests to NHPs and consumers alike that PAs and NPs are not fully substitutable for MDs even in relatively simple cases. The implicit question is patent: Why should Medicare, for example, provide any reimbursement for NHP services to the aged if the services are inferior; and if NHP services are not inferior, why do they carry a lower Medicare claim rate than the same services carry when offered by MDs?

No such stigma attaches to the alternative proposal of a price differential related to type of service rather than to type of provider. Moreover, NHPs need have little fear that the cost-containment stragem that we propose would be achieved by downward pressure on their present salary rates. The target is the physician's windfall from NHP revenues that are greater than NHP costs. Of course, market conditions—for instance, the demand for NHPs increasing faster than their supply—might enable an NP or PA to force the employing physician to share the windfall with the employee. In that circumstance, the NHP's particularist interest in economic gain would be at odds not only with the MD's particularist interest in keeping the windfall intact but also with public and consumer interests in eliminating the windfall.

The approach we are suggesting would entail the enumeration of delegable services. Although some arbitrariness would be required, a decade of experience with NHPs in a variety of practice settings has produced a high order of agreement concerning services that are NHP-appropriate. There is less consensus about the most efficient combinations of MDs and NHPs, but the best mixes could be hammered out on the empirical anvil for each mode of practice.

The proposed approach to reimbursement for NHP services has something of a precedent in the embryonic maximum allowable cost (MAC) program for prescribed drugs. Substitution of generic drugs is not required, but the incentive to use the

bio-equivalent formulary may be strong because reimbursement rates for multiple-source drugs will tend to be set below those for the most highly priced brand-name drugs.

The flexibility of the proposed reimbursement schema for NHPs is illustrated by the possibility of adjusting the allowable fee upward in severely underserved locales such as inner cities and rural areas. For those regions, improved access might be given some priority over cost containment by setting the reimbursement rate to permit some windfall. Thus, something less than the full cost-saving potential of NHP utilization would be captured, in order to raise the incentive to employ NHPs and raise the output of services.

Reimbursing NHPs directly. Up to this point the discussion has assumed that NHPs would be employed by physicians and that reimbursement checks would go to those physicians. There are, of course, many NHPs employed by hospitals, HMOs (health maintenance organizations), and other institutions, but the thrust of our remarks about cost-containment possibilities and incentives to hire NHPs applies equally well to physician and institutional employers.

There is, however, another mode of delivery, still in the early stages of development, that deserves special scrutiny. We refer to the independent practices that NHPs, particularly nurse practitioners, have been establishing over the country during the last 5 or 6 years. They are still few in number, and they are far from solvent (9). A major impediment to their growth is the refusal of virtually all third-party payers to reimburse them directly for their services. At best they may arrange a reimbursement "pass-through" from some physician or clinic; at worst they are confined to noninsured consumers as patients.

Direct reimbursement for properly certified NHPs practicing independently is part of our proposal. By independent we mean entrepreneurially independent. Certainly, we do not suggest that medical services be given by NHPs without adequate physician supervision or adequate access to an MD for collegial consultation. Appropriate physician input, however, does not depend upon an employer-employee relationship; it can be contracted for or hired (10). Moreover, there is little hard evidence that quality assurance demands the proximate availability of physician input any more than high-quality primary care requires the direct supervision of a family practitioner by a phalanx of specialists.

Direct reimbursement plus relaxation of the requirement of physically immediate supervision might

encourage qualified NHPs to move into unserved and underserved areas to expand access to health care, with minimal blunting of cost-containment initiatives. Indeed, where such NHP practices are already established, they tend to be characterized by two developments: (a) fees are set well below the prevailing physician prices and (b) the practices include such services as house calls, nursing home calls, and nutrition counseling, which had been largely abandoned, or never really embraced, by physicians (9, 11).

Caveat. Having begun this paper by calling attention to the ease with which sins of oversimplification are committed, we now confess to having given only a passing nod, in the foregoing discussion, to the convoluted implications of the reimbursement policy that we have proposed. To make at least partial amends, we now pose three questions that should be pursued by researchers and policy makers.

First, there is the interesting issue of whether entrepreneurial independence is compatible with adequate physician supervision or consultation in NHP practices. The compatibility has been questioned by a number of observers. There is now sufficient experience with independent NHP practices at least to suggest the answer to this question if the practices were adequately studied.

Second, there is the possibility that physician-manipulated demand might blunt, if not indeed entirely eliminate, the cost effectiveness of NHPs, especially in static practices. If a practice is growing sufficiently, services can be delegated to an NHP without causing underemployment of physicians in that practice. In a static practice, a physician might hire an NHP to perform services reimbursable (in the foregoing illustration) at \$7 rather than provide them himself at that price. However, the temptation might then be strong to create or increase demand for the more complex services reimbursable at \$14. Further research might suggest whether this tendency could be contained by present conventions such as the Professional Standards Review Organization (PSRO) and more cost-sensitive third-party payers, or whether more stringent controls would be required.

Third, the issue of service-based rather than provider-based reimbursement goes beyond the service sector in which the NHP functions; among MDs, for instance, specialists typically receive a higher Medicare fee than general practitioners. Our preference for a reimbursement schedule that focuses on type of service rather than on type of provider extends to all providers in the whole third-party payment sys-

tem, especially Medicare and Medicaid. We do not suggest that a patient should be denied the right to have a sore throat swabbed by an MD rather than by a PA, or by an otolaryngologist rather than by a family physician; nor do we suggest that the family physician should be prevented from charging more than the PA, or the otolaryngologist more than the family MD. The point we make here is that neither the taxpayers (in the case of Medicare and Medicaid) nor fellow subscribers to a private insurance plan should have to pay the differential if a patient chooses a more expensive provider for a service that a less expensive provider could perform adequately.

The proposed reimbursement approach would necessitate a major revision of present reimbursement policy, but as the nation moves toward national health insurance, it is not premature to ask whether the frailties of the present system should not be remedied now. The alternative is to compound them by carrying them forward into a more comprehensive actuarial program that would cover the whole population.

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