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Should Insurers Pay the Same Fees Under an All-Payer System?

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Medicare's use of diagnosis-related groups (DRGs) and the resource-based relative value scale (RBRVS) has led to interest in developing a national all-payer system in which insurers use the same payment methods and payment rates. Using data for 81 high-volume DRGs from 457 California hospitals, we conclude that a single set of rates for hospital care would not be appropriate. On average, Medicare patients were 11.7 percent more expensive than commercially insured patients, but less expensive in many DRGs. Further research is needed to determine if Medicare patients require more physician resources compared with non-Medicare patients, particularly for surgical procedures.

INTRODUCTION

Health care reform has emerged as a serious priority at both the national and State levels. The primary goals of most reform efforts are to improve access to health care services while also controlling total health care expenditures and assuring quality of care. Although seemingly contradictory, many analysts believe that evidence from other countries and past U.S. experience suggest that these goals are not only compatible, but must be pursued simultaneously as part of an effective strategy for U.S. health care reform.

One option for reform would give government the sole authority to pay providers. Such an arrangement, known as a single-payer system, is exemplified by the Canadian health care system. Proponents argue that a single-payer system would assure equal access to care for all citizens, and that it would be more successful in controlling costs. Cost control might be easier not only as a result of the reduced administrative costs and possible economies of scale, but also because of the government's exclusive bargaining power.

Although direct government control of the health care system in the form of a Canadian-style single-payer system might be the most effective means of controlling the rise in health care costs, its enactment by Congress or individual States faces severe political barriers. Consequently, some sort of alternative to a single-payer system—one that offers the advantages of cost control and universal coverage, but does not represent a government takeover of the health care payment system—might be more likely to overcome these political barriers (Holahan et al., 1991).

Whether it is the centerpiece or just a component of health care reform, proponents of an all-payer system believe that it offers a more politically acceptable alternative to a single-payer system and retains some of the same advantages. An all-payer system would keep in place our many public and private insurers, but would require that they each pay the same price to providers. Thus, all public and private insurers would continue to operate, but they would be required to use a common

payment methodology (e.g., DRGs for hospitals, RBRVS for physicians) and pay a common price.[1] A number of other countries (Germany, France, Japan) have national health programs that resemble, to varying degrees, all-payer systems (U.S. General Accounting Office, 1991), as did some proposals for health care reform introduced before Congress. Advocates suggest that an all-payer system would enhance access to care and, at the same time, better control health care costs. In fact, a report by the U.S. Congressional Budget Office (1991) concludes that if Medicare's payment rates were employed, universal health insurance coverage could be provided under an all-payer system at a net cost of only $5.6 billion, less than 1 percent of total U.S. health spending in 1989.

An all-payer system could improve access to care because providers would have a financial incentive to treat all patients in the same manner. No patient would be worth any more to a provider than any other. In contrast, it is almost universally believed that many hospitals and physicians now avoid caring for Medicaid patients due to their relative unprofitability, and there is increasing anecdotal evidence that the same thing may be beginning to occur under Medicare.[2]

With respect to costs, an all-payer system has three potential advantages. First, unit fees would be directly controlled under the system. Second, an all-payer system should curtail the practice of "cost shifting," by which providers charge more to other payers when one payer cuts its fees. Third, an all-payer system would be simpler to administer.

The success of an all-payer system may depend on other policy reforms. Enhanced access, for example, could be frustrated if physicians are allowed to "balance bill" patients or if they stop practicing medicine. Costs might not be controlled if the all-payer rate were set too high, or if providers responded to controls on unit fees by raising the quantity of services. Other policy tools, therefore, such as volume performance standards or global budgets, are likely to be a necessary complement to an all-payer system.

Previous studies (Ginsburg and Thorpe, 1992; Rice, 1992) have examined the policy and design features of all-payer systems, including:

• The structure of the ratesetting agency.
• The role of alternative delivery systems.
• Control of service volume.
• Payment differentials.

These authors address important design features that can be expected to influence the economic impact of an all-payer system. But there are other fundamental technical issues that must be addressed before an all-payer system could be implemented as part of a national health care reform package. One deals with whether Medicare payment methods can be applied to other payers, or if significant modifications are needed before applying these methods broadly. Evidence from State Medicaid programs suggests that modifications are necessary before adopting DRG- or RBRVS-based payment methods for non-Medicare populations (Lichtig et al., 1989; Intergovernmental Health Policy Project, 1992).

Once DRGs and the RBRVS are modified for use by all payers, other fundamental questions to be addressed are how price

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[1] As discussed later, this does not necessarily mean that payment rates should be identical. It may be appropriate to use differing payment rates for a particular hospital DRG or physician service even under an all-payer system if patients covered by one payer are more costly to treat than those covered by another.

[2] The Physician Payment Review Commission (PPRC) estimates that, in 1994, Medicare payments to physicians will average only 65 percent as much as payments by private insurers. Thus, it should not be surprising to see some physicians eschew the Medicare market (Physician Payment Review Commission, 1992b).

levels should be chosen and whether the substantial payment differentials that currently exist among insurers for the same service should be reduced or eliminated. The primary reason for retaining payment differentials under an all-payer system would be that patients covered by one payer are more costly to treat than those covered by another.

This article examines the latter issue, i.e., whether all public and private payers should pay the same fees under an all-payer system. Our focus is on hospital and physician payment under an all-payer system, although the conceptual issues could apply to other settings as well, such as nursing homes and psychiatric hospitals. In the next section, we present a conceptual framework that addresses the goals of an all-payer system, the appropriate units of payment, and the question of whether all insurers should be required to pay the same rate. Following a discussion of our data and methods, we present the results of our analysis of discharges from 457 California hospitals. The following section provides policy implications from this data analysis, and discusses the issues surrounding the implementation of an all-payer system for physician services. Our conclusions suggest that a single set of hospital payment rates would not be appropriate for all services because Medicare patients consume a disproportionate share of resources with DRGs. More research, however, is necessary to determine whether this is also the case for physician services, particularly surgery.

CONCEPTUAL FRAMEWORK

Goals of an All-Payer System

The goals of an all-payer system should be to ensure:

- Equitable access to health care for patients of all insurers.
- Efficient production of services.
- High quality processes and outcomes.
- Containment of growth in total health care costs.
- Elimination of cost shifting among payers.

Although there may be trade-offs between cost, quality, access, and outcomes, it is not unreasonable to expect that an all-payer system could achieve improvements along all these dimensions. The success of the system is likely to depend, however, on both the units of payment selected and the level of initial payments.

One of the primary advantages of an all-payer system is that it facilitates meeting the first goal—adequate access to care. By equalizing payment rates, hospitals and physicians will not have a financial incentive to choose to treat one patient over another (particularly if balance billing is prohibited).

The only major threat to access under an all-payer system would be if payment rates were set at such a low level that hospitals begin to close, physicians quit the profession, or the number of people willing to enter the medical field declines substantially. The threat of increased hospital closure is a real concern. Medicare profit margins have declined substantially since the implementation of the prospective payment system (PPS), although this has been partly to correct for windfall profits in the early years of PPS. Private insurers are subsidizing hospital losses due to Medicare and Medicaid patients (Prospective Payment Assessment Commission, 1992b). Thus, payment rates set at Medicare levels, for example, would most likely pose a serious financial threat to most hospitals.

In contrast, these outcomes are less likely to occur in the physician market. The rates of return on the investment of becoming a physician far outweigh those in

most other professional fields (Burstein and Cromwell, 1985). Furthermore, in Canada, where real physician fees have declined substantially over the last 20 years, there continues to be an adequate and growing physician supply (Barer, 1988).

Units of Payment

For purposes of this article, we assume that DRGs and the RBRVS would serve as the units of payment in a national all-payer system. Recent studies mandated by Congress have examined how both these systems could be adapted for use by other payers (Prospective Payment Assessment Commission, 1992a; Physician Payment Review Commission, 1992b).

Use of the DRGs for all insurers assumes that resource use can be predicted accurately for each payer in each DRG. The developers of DRGs intended for them to predict resource use for all patients, not just Medicare patients (Fetter, 1991). Nevertheless, the accuracy of DRGs has been challenged often since the implementation of PPS, and a number of modifications have been proposed to improve the accuracy of DRGs in measuring severity of illness and resource use (Iezzoni, Schwartz, and Restuccia, 1991; Thomas and Ashcraft, 1991; Cretin and Worthman, 1986; Bloomrosen and Kominski, 1988). Despite this concern about DRGs, systematic inequities in payment due to inaccuracies in the DRGs appear to be offset by other PPS payment adjustments, such as those for indirect teaching and a disproportionate share of low-income patients (Prospective Payment Assessment Commission, 1992b).

It is reasonable, therefore, to assume that DRGs could be used as part of an all-payer system without substantial disruption in the delivery of hospital care. In fact,

an all-payer system might remedy some recent adverse consequences of PPS. Because annual updates to PPS payment rates have been essentially equal to the increase in the hospital market basket, PPS has contributed to the overall increase in financial pressure experienced by hospitals (Prospective Payment Assessment Commission, 1992b). This financial pressure has resulted in substantial cost shifting from public payers to private payers (Prospective Payment Assessment Commission, 1992a).

The implementation of the RBRVS-based Medicare fee schedule (MFS) has accelerated interest among State Medicaid programs and private insurers in adopting similar RBRVS-based payment systems. Like DRGs, the RBRVS was specifically intended by its developers to describe the resource use of a typical patient, regardless of payment status (Hsiao et al., 1992). However, as States have begun adopting RBRVS-based payment systems for Medicaid, they have found it necessary to modify relative values for services not frequently provided to Medicare patients, such as pediatrics and obstetrics (Coburn, Lambert, and McGuire, 1992). Private payers are interested in RBRVS-based payment schedules to reduce the opportunity for cost shifting as Medicare moves toward fully national payment rates in 1996 (Jones, 1992). Therefore, the RBRVS also appears to be a viable basis for physician payment under an all-payer system.

Should Insurers Pay the Same Rate?

To ensure equity among patients of all payers, and to reduce the potential for cost shifting, all-payer rates should be calculated to reflect the estimated costs per case as closely as possible. There is still debate over the policy implications of cost shifting

(Ginsburg and Thorpe, 1992), but we assume that cost shifting can occur, and that it distorts the supply of services to patients whose costs are high relative to the fees paid by their insurers. Hence, a single set of payment rates should be applied to all insurers only if the underlying costs of treatment are the same across payers.

Using economic theory, we assume that providers attempt to maximize a utility function that includes a profit margin,

$$\Pi = \Sigma\, n_{ij}\pi_{ij} = \Sigma\, n_{ij}(F_{ij} - C_{ij}),$$

where

i = the service (i.e., current procedural terminology [CPT] code or DRG).
j = the insurer.
n = the volume of the service.
F = the payment or fee for the service.
C = the cost of the service.

One implication of such a model, as shown by McGuire and Pauly (1991) with regard to physicians, is that distortions across payers can occur depending on the relative margins and market shares of different insurers. Presumably these volume responses could be avoided if all providers were paid the same fee, i.e., if a single F_{ij} could be used for all payers. Clearly, this will only be justified if C_{ij} is (relatively) similar across all payers. If, in contrast, some payers tend to have higher costs than others, then all-payer rates should be adjusted to reflect this (i.e., the payers with more costly patients should be given a higher F_{ij}).

For hospital inpatient services, cost differences across insurers could result in two payment options: payer-specific DRG-relative weights or payer-specific base payment amounts. Separate relative weights are warranted if the cost differences between payers vary considerably by DRG. Separate payment amounts—used with a single set of relative weights for all payers—are appropriate if the cost differences between payers are a relatively constant percentage across DRGs. Likewise, for physician services, differences in resource use could lead to separate relative value scales by payer, or separate conversion factors applied to a single relative value scale, depending on how differences in resource use by payer vary across CPT codes.

DATA AND METHODS

To address the issue of whether a single set of payment rates could be used for inpatient care as part of a national all-payer system, we conducted an analysis of calendar year (CY) 1988 discharges from 457 California hospitals. (Because comparable all-payer data are not readily available for physician services, we discuss the issue of cost differences by payer for physician services later). We selected the 50 highest volume DRGs for all payers combined, and the 50 highest volume DRGs for Medicare. This produced 81 unique DRGs for analysis. These DRGs accounted for about 60 percent of total hospital discharges and 60 percent of Medicare discharges in California during 1988, and represented the most recently available data when we began this study. Although these DRGs are not necessarily representative of all DRGs, they account for a substantial portion of total hospital discharges. Thus, differences in resource use are more likely to be important in these DRGs because of their high volume.

The data are reported to the California Office of Statewide Planning and Development in a uniform format that includes patient-level demographic, diagnostic, and procedure data, as well as length of stay (LOS) and total charges for all discharges from short-term, acute-care hospitals for a CY. Each record also includes the current

Medicare DRG; in our sample, the fiscal year 1988 Medicare DRGs. (The only exclusions are hospitals owned and operated by closed-panel prepaid plans, primarily those of the Kaiser Foundation.)

We chose California hospital discharges because these data were readily available. Although other States collect all-payer hospital discharge data, there is currently no uniform data base containing both discharge and Cost Report data for a large number of States. Furthermore, our goal was to provide preliminary evidence related to the design of a national all-payer system, not the final estimates for all-payer rates. Thus, California's 3.5 million discharges present a sufficiently large population to estimate differences in resource use within DRGs by payer that are not subject to small sample problems.

We conducted regression analysis within DRGs to test for differences in resource use among payers. The only independent variables in these analyses were categorical variables for Medicare, Medicaid, Blue Cross, health maintenance organizations (HMOs), and all other payers combined. This model specification loads the effects of other factors that might influence resource use onto the payer variables. Commercially insured patients served as the comparison group, and are included in the intercept of the regression model.

We purposely omitted all other variables—including those that might account for differences in resource use across payers—because we did not want to control for factors not currently included in the Medicare DRG definitions. This approach allowed us to examine a related question: Can Medicare DRGs be used for all payers without modifications?

Three measures of resource use were used as dependent variables: LOS, total charges, and total estimated costs. Total costs were estimated using hospital-level cost-to-charge ratios constructed to correspond to CY 1988.[3] This method is subject to several limitations. It is less accurate than using departmental cost-to-charge ratios. We were unable to employ department-level adjustments, however, because the California discharge files include only total patient charges, and not departmental charges. These costs also represent average accounting costs rather than marginal economic costs. A model that used total costs as the dependent variable and examined marginal cost differences by payer would clearly provide better information than our models based on average costs (Grannemann, Brown, and Pauly, 1986). Our models are consistent with current methods for calculating DRG relative weights, however, which are based on average resource use rather than marginal cost (Rogowski and Byrne, 1990).

We also standardized costs to account for the effects of area wages, indirect teaching costs, and low-income share using PPS payment adjustments for each hospital. Specifically, for each hospital, we divided each patient's estimated costs by the appropriate PPS adjustment factors for that hospital. These adjustments were originally developed using a national set of hospitals to measure the impact of these factors on Medicare costs per case. They have subsequently been modified under PPS in response to political considerations, and thus may now be biased estimates (Rogowski and Newhouse, 1992). Although we have no reason to believe that these adjustments are biased when applied to California hospitals only, we are less certain about the magnitude and direction of

bias when applying these adjustments to non-Medicare discharges. Clearly, one element in a national all-payer system would be to estimate payment adjustments based on all hospital patients.

Each regression was conducted using the natural logarithm of the dependent variable, after excluding cases with charges equal to zero or LOS greater than 90 days. The regression coefficients in each model can be interpreted as the percentage difference between the group defined by the independent variable and the comparison group, i.e., commercially insured patients, after performing the following transformation: $(e^\beta - 1) \times 100$. The percentages displayed in Tables 1-3 are coefficients that have been transformed in this way.

RESULTS

The findings for our regression analyses are summarized in Table 1. The results for the three measures of resource use show a consistent pattern across the five major payers. Medicare patients, on average, have the highest resource use within DRGs. HMO and other insured patients have the lowest resource use. Medicaid patients have LOSs and total charges that are essentially the same as commercially insured patients, but their costs are substantially lower.

Table 1

Average Percentage Difference in the Resource Use of Hospital Inpatients Covered by Major Insurers: California, Calendar Year 1988

Insurer	LOS	Charges	Costs
Medicare	23.8	8.9	11.7
Medicaid	0.8	-1.0	-12.3
Blue Cross	1.2	-0.4	0.6
HMO	-2.5	-2.4	-4.5
All Other Payers	-9.6	-11.4	-16.2

NOTES: Averages are calculated as the patient-weighted average across the 81 DRGs studied. LOS is length of stay. HMO is health maintenance organization.

SOURCE: California Office of Statewide Health Planning and Development hospital discharge data, 1988.

Focusing on costs, our analyses indicate that Medicare patients are 11.7 percent more expensive than commercially insured patients. This difference equals the patient-weighted average of the Medicare coefficients across the 81 DRGs studied. In contrast, three of the other payers are less expensive on average: Medicaid, -12.3 percent; HMOs, -4.5 percent; and all other payers, -16.2 percent. Blue Cross patients were only slightly more expensive on average (0.6 percent) than commercially insured patients. The complete findings for the 81 DRGs studied using cost as the dependent variable are presented in Table 2. For each DRG, the intercept represents the average cost of commercially insured patients, and coefficients are presented as percentage differences compared with the intercept. The low amount of variance explained in most DRGs suggests that insurance status is generally not a highly accurate predictor of resource use. Many of the coefficients are large in magnitude and highly significant, however. The large number of patients in each insurance category causes even small cost differences to be statistically significant. Thus, the magnitude and distribution of the DRG-level cost differences are more important than statistical significance.

The distribution of DRG-level cost differences for Medicare, Medicaid, and HMO patients compared with commercially insured patients is shown in Figure 1. For 20 of the 81 DRGs studied, Medicare patients were at least 20 percent more costly than commercially insured patients. Medicare patients are not consistently more costly across all DRGs, however. Medicare patients were, in fact, less expensive than commercially insured patients in 18 of the 81 DRGs studied. The results for LOS and total charges show a similar distribution to Figure 1, and are available from the authors upon request.

Table 2

Summary of DRG Regression Results Showing Percentage Cost Differences Between Patients of Major Payers and Commercially Insured Patients

DRG Code	n	Adjusted R^2	Intercept	Coefficients as a Percentage of Intercept				
				Medicare	Medicaid	Blue Cross	HMO	Other
5	6,130	0.04	$5,104	*5.87	4.06	7.64	3.01	2.92
14	40,313	0.30	4,012	-2.00	-1.03	3.80	***-16.36	***-9.50
15	12,907	1.14	2,118	*5.26	**-9.66	0.94	**-8.41	***-21.21
26	4,329	0.47	1,403	**132.31	6.02	-2.45	-5.15	*8.49
70	4,386	0.05	1,326	-26.82	*-4.84	-1.68	*-6.53	0.18
79	20,077	1.45	6,715	-1.34	***-15.73	2.57	***-12.64	***43.76
82	10,818	0.80	3,718	-1.84	***-19.76	0.51	***-16.04	***-20.26
87	7,669	0.34	4,392	7.13	0.99	8.31	-7.33	*-12.26
88	10,394	3.01	3,356	**8.48	***-17.45	1.51	-6.15	***-28.66
89	45,704	2.17	3,818	***12.56	*-3.63	4.56	**-5.16	***-23.28
91	14,562	0.31	1,912	***125.62	*-3.51	3.87	***-7.65	3.11
96	30,305	2.97	3,219	***16.15	***-5.39	0.66	-1.49	***-22.56
97	14,385	5.80	2,263	***15.99	***-12.42	4.46	-2.60	***-30.79
98	18,110	0.02	1,636	-6.47	1.32	-3.87	-1.63	0.41
106	8,639	2.63	21,145	***10.77	-1.82	-2.26	***-5.84	**-5.82
110	9,054	0.13	12,115	5.14	3.09	6.90	-2.30	-8.16
112	27,680	0.10	6,554	1.82	2.65	3.00	***-4.40	-2.18
116	6,322	0.28	8,645	3.64	5.35	6.39	*-8.79	1.82
121	11,745	0.29	6,262	-2.77	-0.15	-4.72	***-14.23	-4.74
122	13,071	0.58	4,560	*-3.69	***-9.34	-5.04	***-12.95	***-11.84
124	14,904	1.69	4,106	***17.34	***11.29	-3.89	**-5.67	-2.19
127	58,072	0.81	3,424	**4.05	***-7.37	-2.24	***-12.16	***-17.51
130	7,032	0.22	3,354	-4.92	-6.12	-6.73	-5.45	***-17.72
138	20,888	1.45	2,392	***20.84	***12.70	*-9.02	-1.07	-4.47
139	11,882	1.81	1,668	***15.88	**7.83	0.51	-1.95	***-12.16
140	43,138	3.09	1,966	***16.04	-1.81	-3.10	**-3.00	***-15.96
141	8,030	2.59	1,894	***23.08	1.71	4.10	-0.17	***-12.51
143	27,325	2.56	1,680	***10.96	-1.97	-1.92	***-7.05	***-15.87
148	18,559	1.87	9,968	***18.74	**7.34	-2.07	-2.47	***-12.40
154	8,796	1.93	9,052	***21.02	-6.58	-11.02	-4.29	***-14.69
167	16,177	2.82	2,463	***24.16	***-100.00	-0.04	***-5.56	***-11.70
174	22,033	2.73	2,720	***22.23	**6.40	4.29	-2.16	***-12.72
180	7,567	0.89	2,400	***19.64	8.13	13.61	1.35	-5.94
182	33,408	3.30	2,053	***27.00	**6.82	-4.20	-1.96	***-14.22
183	20,852	3.63	1,507	***16.98	***-13.46	-1.64	***-8.13	***-24.29
184	11,466	0.36	1,074	*60.72	***6.59	-0.32	-3.65	***7.63
197	12,896	9.07	4,284	***44.96	0.05	-0.16	***-6.32	*4.80
198	17,981	2.64	3,348	***12.25	***-9.67	1.96	***-7.95	-4.11
209	22,854	0.75	10,033	-0.88	***-8.05	2.83	***-11.21	-9.71
210	11,906	1.07	9,474	***-18.06	***-13.75	3.50	***-18.08	-10.31
236	8,976	1.18	2,779	***19.17	3.60	11.19	-4.65	*-8.41
239	6,902	0.89	3,852	***-19.91	***-28.32	5.70	***-17.47	**-16.56
243	23,623	2.09	1,831	***20.05	*-5.59	-0.61	***-6.52	***-10.64
277	11,826	7.17	3,039	**8.08	***-14.87	8.60	-4.97	***-34.39
294	14,507	2.92	2,216	***18.95	-3.11	5.66	-4.08	***-23.52
296	23,384	1.60	2,806	*4.34	***-16.71	4.79	***-9.08	***-26.99
298	4,351	2.23	1,122	***82.23	**26.83	-4.46	3.36	***24.30
320	18,465	4.06	2,686	***34.69	***9.72	-0.66	1.36	***-13.49
336	10,122	0.22	3,088	2.74	**9.01	-1.58	-3.39	*-7.50
337	12,827	0.23	2,419	-0.40	*-4.70	0.30	***-5.41	-2.90
359	43,007	2.59	3,076	***5.82	***-15.85	0.78	***-6.35	***-15.31
368	5,742	2.90	1,992	***57.78	***-15.73	5.14	-3.60	***-15.52
370	22,863	0.80	3,121	4.14	***-9.95	1.58	-3.18	***-7.56
371	91,051	2.38	2,536	*-4.90	***-12.51	0.30	***-4.01	***-10.03
372	25,070	1.37	1,466	-6.50	***-12.26	0.57	***-3.93	***-16.20
373	320,669	3.91	1,081	***-7.82	***-17.34	0.16	***-3.97	***-18.29
374	17,253	2.00	1,924	12.10	***-11.09	2.80	**-2.61	***-14.38
376	4,893	4.57	1,256	12.27	***-32.49	-0.02	*-9.96	***-39.18
378	8,459	1.88	2,620	2.20	***-15.41	3.04	-2.13	*-3.29

See notes at end of table.

Table 2—Continued

Summary of DRG Regression Results Showing Percentage Cost Differences Between Patients of Major Payers and Commercially Insured Patients

DRG Code	n	Adjusted R^2	Intercept	Coefficients as a Percentage of Intercept				
				Medicare	Medicaid	Blue Cross	HMO	Other
379	13,973	0.88	$917	-9.82	***-17.74	2.14	**-6.13	***-16.46
381	9,932	2.18	1,262	12.06	***-21.19	*-8.19	***-9.00	***-21.89
382	5,165	0.45	417	1.24	***-10.59	3.21	6.61	-4.76
383	16,932	0.29	1,115	**26.83	-1.58	0.55	-1.20	***-10.94
384	8,236	2.65	781	-13.99	***-19.68	6.10	-1.57	***-31.42
385	8,587	1.49	1,460	0.00	*-10.61	2.73	-8.19	***-49.61
386	6,644	0.15	8,982	0.00	-7.14	-17.13	-6.06	9.54
387	9,868	-0.03	3,211	0.00	1.47	1.88	-2.73	0.84
388	10,251	0.45	787	0.00	**-8.52	1.46	*-8.22	***-23.49
389	54,934	0.09	820	**417.38	***-6.56	-4.54	-2.34	***-7.72
390	76,503	0.95	406	***222.59	***-13.36	*-3.54	-1.18	***-15.68
391	329,044	2.06	332	3.25	***-15.01	***2.57	***-4.95	***-18.60
395	11,201	0.72	2,126	4.28	*-5.95	9.82	***-15.05	***-14.62
410	29,054	0.27	1,962	*-2.27	***-9.81	*-4.35	-2.18	***-13.02
416	15,621	0.09	5,051	2.23	3.12	9.59	-3.95	*-8.05
422	5,222	0.21	1,432	28.03	-2.90	-6.50	**9.72	**-8.31
430	56,921	3.82	3,612	*-3.11	***-28.77	-3.44	***-28.17	***-40.37
442	8,106	0.19	5,612	***-13.55	*-10.08	-5.71	*-9.75	-6.85
449	9,644	1.48	2,270	***15.75	0.58	7.67	-6.19	***-11.22
462	13,381	4.28	3,573	***129.52	***158.83	***60.06	***161.95	***34.30
468	15,096	8.63	4,827	***108.84	***12.93	-0.99	1.83	-4.34
475	11,679	0.72	11,109	***9.64	-1.01	14.64	*-9.14	***-12.60

$^* = p < .05$
$^{**} = p < .01$
$^{***} = p < .001$

NOTES: HMO is health maintenance organization. Significance levels are provided, although data are reported for the entire population of California hospital discharges during calendar year 1988.

SOURCE: California Office of Statewide Health Planning and Development hospital discharge data, 1988.
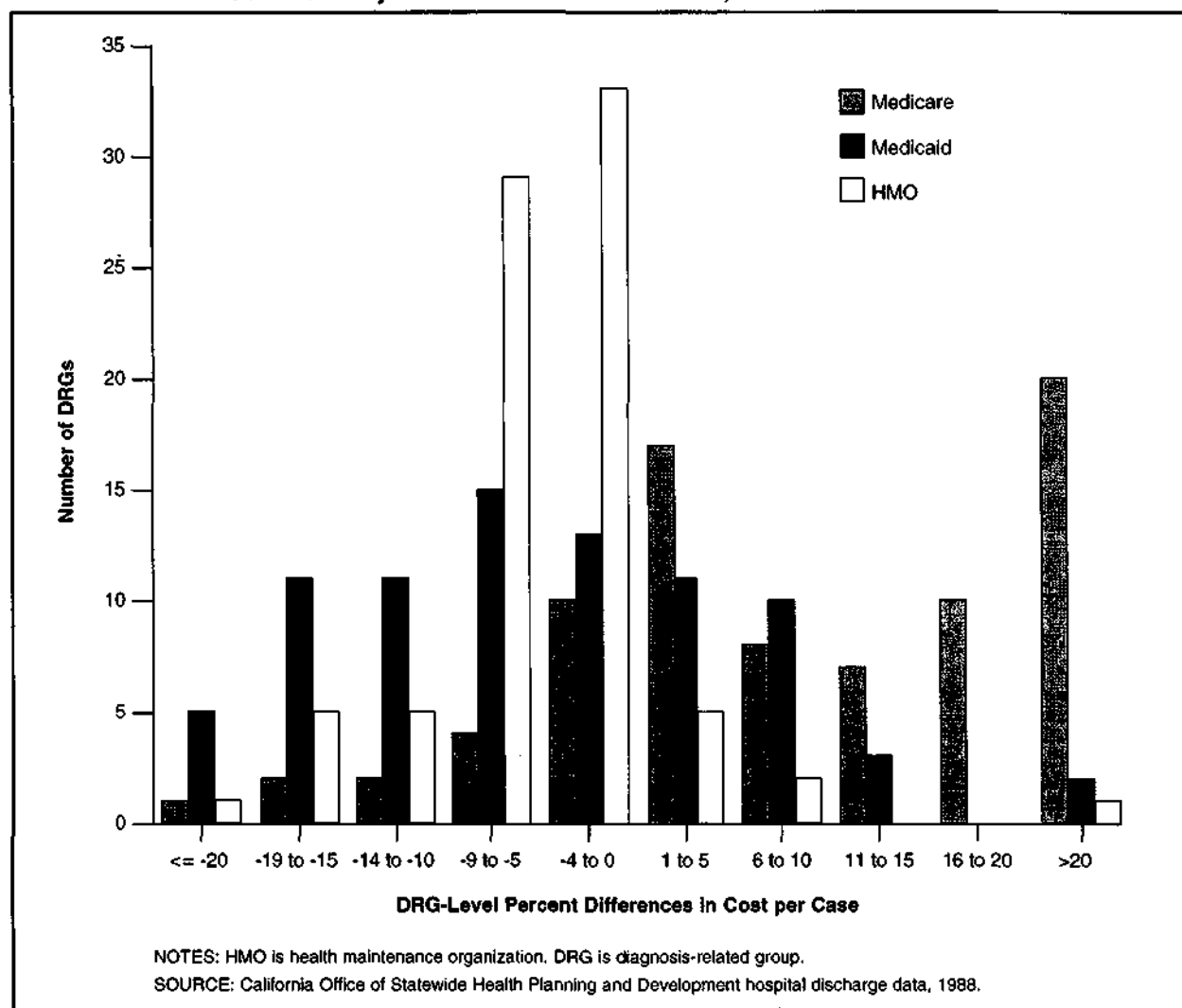
Table 3 presents the 10 DRGs with at least 1,000 Medicare patients that showed the greatest cost differences between Medicare patients and commercially insured patients. In 1988, DRG 468 (unrelated operating room procedures) contained well-documented classification problems that have subsequently been addressed by creating three separate DRGs (Kominski and Schoenman, 1990). Thus, the cost difference for this DRG may have been reduced by recent refinements to this DRG's definition. For the remaining DRGs in Table 3, there are no obvious clinical reasons why Medicare patients should be more costly in some DRGs, while less costly in others.

DISCUSSION

Hospitals

Our results suggest that a single rate per DRG for all payers would not be appropriate. Resource use varies within DRGs by payer, but not in a consistent manner across all DRGs. For example, Medicare patients are substantially more expensive (20 percent or higher) than commercially insured patients in many DRGs, but are less expensive in other DRGs. Our findings are consistent with those of an earlier study of discharges from New York hospitals (Thorpe, 1987), and suggest that a single set of relative weights for all payers may not be appropriate under a national all-payer system.

Figure 1
Average Cost Differences for Medicare, Medicaid, and HMO Patients, Compared With Commercially Insured Patients: California, Calendar Year 1988

NOTES: HMO is health maintenance organization. DRG is diagnosis-related group.

SOURCE: California Office of Statewide Health Planning and Development hospital discharge data, 1988.

The results in Table 1 do not necessarily indicate that each major payer should have its own set of DRG relative weights. HMO patients, for example, use less resources on average than commercially insured patients. Under a national all-payer system, insurers might be permitted to negotiate fees lower than the all-payer rates as a mechanism for containing costs. Medicare patients may be more costly because of greater severity of illness that is not captured by the current Medicare DRG definitions.

Medicaid patients had LOSs and total charges that were quite similar to commercially insured patients, but costs that were substantially lower. This may occur because Medicaid patients are more likely to be treated in hospitals with a high portion of uncompensated care expenses, and thus low cost-to-charge ratios. Thus, the lower costs of Medicaid patients in this study may not be a reliable measure of relative resource use, and do not imply that Medicaid should have lower fees under an all-payer system.

Table 3

DRGs With Greatest Cost Differences Between Medicare Patients and Commercially Insured Patients: California, Calendar Year 1988

Percent Cost Difference	DRG Code	Definition
-20.0	239	Pathological Fractures and Musculoskeletal and Connective Tissue Malignancy
-18.1	210	Hip and Femur Procedures Except Major Joint Age >17 With CC
-13.6	442	Other Operating Room Procedures for Injuries With CC
-4.9	130	Peripheral Vascular Disorder With CC
-3.7	122	Circulatory Disorders With Acute Myocardial Infarction Without Cardiovascular Complication, Discharged Alive
+27.0	182	Esophagitis, Gastroenteritis, and Miscellaneous Digestive Disorders Age >17 With CC
+34.7	320	Kidney and Urinary Tract Infections Age >17 With CC
+45.0	197	Total Cholecystectomy Without Common Duct Exploration, With CC
+108.8	468	Unrelated Operating Room Procedures
+129.5	462	Rehabilitation

NOTES: CC is complication or comorbidity. Each DRG included at least 1,000 Medicare discharges from California hospitals in calendar year 1988.

SOURCE: California Office of Statewide Health Planning and Development hospital discharge data, 1988.

One issue that would require further examination before developing all-payer rates is the stability of DRG-level differences in resource use over time. We used the entire population of hospital discharges from California hospitals in the 81 DRGs selected for this study, and most payer categories had more than 1,000 cases per DRG. Thus, we believe that we have highly stable findings for CY 1988, but are uncertain about how the DRG-level findings behave over time. This is clearly one area for further research.

Finally, our findings could have significant redistributive consequences. The Prospective Payment Assessment Commission (ProPAC) (1992a) estimates that private insurance payments equal 128 percent of costs, while Medicare and Medicaid payments equal only 90 percent and 80 percent of costs, respectively. Thus, if fees under an all-payer system for all major insurers were based on their costs, fees for private insurers would be reduced by 22 percent, while fees would be increased by 11 percent for Medicare, and by 25 percent for Medicaid. ProPAC's study did not directly address the issue of

the relative costs of each major insurer, however. Our results indicate that the relative costs of Medicare patients, after controlling for case-mix differences, are at least 12 percent higher than privately insured patients (i.e., commercially insured, HMO, and Blue Cross). If these results were nationally representative, substantial increases in financing for Medicare and Medicaid would be necessary, and substantial reductions in the premiums collected by private insurers would be possible.

Physicians

If the RBRVS-based MFS is used as the basis for physician payment under an all-payer system, the question to be addressed is whether the relative value units reflect the amount of effort needed to treat all patients. If they do, then the same physician fees could be used by all insurers; if they do not, then some modification would be necessary. The most commonly discussed method of doing so would be to make adjustments in the conversion factor in situations where the patients covered by one insurer are

more costly to treat—for example, using what has been coined a "Medicare adjuster."[4] (We will not consider whether pediatric patients also involve more effort for particular procedures, since we are aware of no empirical information on this issue.)

To examine the need for such an adjustment, it is useful to consider each of three types of services separately: visits, surgery, and ancillary services. Beginning with the last of these, there would appear to be little need to have different payment rates for different types of patients for testing and imaging services. Although there is no research available on this specific issue, it would seem that the amount of work that goes into interpreting such tests should be invariant with patient age (Physician Payment Review Commission, 1991c).

With respect to visits, there are several studies concluding that Medicare and non-Medicare patients require similar amounts of physician effort. As part of the Phase II study conducted by Hsiao et al. (1990) on the RBRVS, the amount of work entailed in providing the following services was compared:

- A followup office visit for a stable 80-year old with metastatic breast cancer, versus a similar 50-year old patient.
- A followup office visit for a 70-year old diabetic hypertensive with recent change in insulin requirements, versus a similar 45-year old patient.
- A followup office visit for a 67-year old male with right above-the-knee amputation who is having physical discomfort due to his prosthesis, versus a similar 27-year old patient.

Hsiao et al. (1990) found that the amount of work required for both patients was almost identical—within one minute of each other. The authors concluded that "there does not appear to be any substantial difference in the amount of work involved in treating patients of different ages" for these three types of visits. Similarly, in its survey of visits and consultations, PPRC (1991b) found no relationship between patient age, the length of a visit, and the total work involved in treating a patient.

In addition to this empirical evidence, there is another reason to feel comfortable with the lack of an age adjuster for visits. The new coding scheme adopted by the American Medical Association's CPT Editorial Panel and included in the MFS, explicitly includes average visit length in the descriptors of the various visit codes (American Medical Association, 1991). Consequently, if, for example, elderly patients take longer to treat than others, physicians will be able to bill Medicare for a more intensive (and thus, more remunerative) service.

The only remaining type of service to consider is surgery, where there may be need for a Medicare adjuster. The difficulty in determining the need for a Medicare adjuster for surgery stems from the way in which the Hsiao study was designed. Large numbers of physicians in several specialties were asked to estimate the amount of work it would take to treat patients in various "vignettes." In most cases, the vignettes given to the surveyed physicians did not contain the patient's age, and only about 8 percent specified an elderly patient (Physician Payment Review Commission, 1989). Thus, if an elderly patient differs from the typical patient, then the responses given by physicians may not directly apply to Medicare beneficiaries. The irony is that

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[4]A related issue is whether patients who have special needs or characteristics (e.g., those with communication barriers, cognitive disabilities) should be treated differently under the payment system. The PPRC (1992a) recommends that payment "modifiers" be developed and used to assure that such patients are not at a disadvantage in seeking physician care. Such modifiers could also be used as part of an all-payer system, but this issue was beyond the scope of our study.

the original MFS adopted by Congress may be more appropriate for the non-elderly than the elderly. In 1992, HCFA revised several hundred work values after analyzing comments invited from the physician community. Future updates and refinements to the MFS may produce relative values more reflective of resource use by the Medicare population.

The MFS includes global service definitions for surgery, which encompass not only the surgical service itself but also pre-operative and postoperative visits. Thus, differences in physician effort could stem from a different amount of effort going into the operation itself, or from providing more pre- and postoperative visits. There is, unfortunately, no data available on the former. With respect to the latter, although LOS is longer for elderly patients, PPRC (1991a) found no systematic relationship between this longer LOS and the number of postoperative visits received. However, there is a relationship for some services. For example, PPRC (1992a) reports that the "removal of an ovarian cyst entails twice as many postoperative hospital visits for an elderly patient compared to a 24-year-old patient."

There is some disagreement over whether Medicare adjusters are necessary for the global surgical codes included in the MFS. Hsiao (1991) has stated that "differences in work for the over-65-year-old-patient and all-patient groups will average . . . *less than 10 percent of the total work* for . . . most major surgical procedures." PPRC (1992a) recommends that there be a Medicare adjuster when two things are true: "(1) the typical patient is not a Medicare patient, and (2) substantially more work is required to provide the service to a Medicare patient than to a typical patient." More research would have to be

conducted to determine which surgical codes need such adjustment, as well as the magnitude of any such changes.

CONCLUSIONS

Our analysis of the conceptual and empirical evidence indicates that more research is needed before implementing a single set of payment rates for all insurers as part of a national all-payer system.

Two alternatives to a single rate per DRG should be considered. One is to calculate payment differentials for each payer to be applied uniformly across all DRGs. Each payer would use the same set of DRG relative weights, but would have its own base payment amount. For example, the Medicare payment amount might be 11.7 percent higher than the payment amount for commercially insured patients, based on our analysis. Another option is to calculate a separate set of DRG relative weights for each payer. Our analysis of California hospital discharges seems to support this option, but further research is needed because of the low amount of variance explained in many DRGs and uncertainty about the stability of DRG-level differences over time.

Another option that could be combined with either of the above options is to explore further modifications or refinements to the DRGs to account for medical conditions that are not prevalent in the Medicare population, or for other risk or severity factors that might apply across all payers, but are not included in the current Medicare DRG definitions. One such study refining DRGs to better account for the medical conditions and resource use of pediatric patients was conducted by the National Association of Children's Hospitals and Related Institutions (1986;

Lichtig et al., 1989). Also, the original developers of the DRG system at Yale University have conducted research to incorporate refined measures of complications and comorbidities into the DRGs (Fetter et al., 1989), although most of these modifications have not been adopted by Medicare for payment purposes. Finally, age was removed from the definition of many DRGs in fiscal year 1988 because of its reduced explanatory power in the Medicare population (Price and Kominski, 1988). Under an all-payer system, age may again become an important variable in predicting resource use.

These efforts to refine DRGs suggest that a modified version would probably be appropriate for a national all-payer system. Our findings argue for further research on each alternative, because a single set of DRG payment rates for all insurers would produce cross-subsidies that would conflict with the earlier stated goals of an all-payer system for hospitals.

We conclude that there is not yet enough empirical evidence to determine how much need there is for separate conversion factor for physician services provided to Medicare and non-Medicare patients. More research first needs to be conducted. It does seem warranted, however, to draw several other conclusions: (1) the same conversion factors can be used by different insurers for visit codes and for laboratory tests and imaging procedures; (2) the same conversion factors can also be used by different insurers for some surgical procedures; and (3) although it might be appropriate to have Medicare adjusters for other surgical procedures, it is unlikely that they would result in a very large payment differential for different types of patients.

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