University of Florida Journal of Law & Public Policy

Volume 2 | Issue 1 Article 8

1988

Regulation of Health Care Costs: The Implications of the Prospective Payment Reimbursement System

Martin F. Grace

Jean M. Mitchell

REGULATION OF HEALTH CARE COSTS: THE IMPLICATIONS OF THE PROSPECTIVE PAYMENT REIMBURSEMENT SYSTEM

*Martin F. Grace**
*Jean M. Mitchell***

I. INTRODUCTION

Health care costs have escalated rapidly since the implementation of Medicare and Medicaid in 1966.[1] Several policymakers attribute this phenomenon to retrospective cost-based reimbursement since these policies tend to promote inefficiencies and inflate input prices.[2] Fur-

---

*Assistant Professor of Legal Studies, College of Business Administration, Georgia State University; B.A., University of New Hampshire, 1980; Ph.D., University of Florida, 1986; J.D., University of Florida, 1986.

**Assistant Professor of Economics, Department of Economics, College of Social Sciences, Florida State University; B.S., Wake Forest University, 1981; M.A., Vanderbilt University, 1985; Ph.D., Vanderbilt University, 1986.

The authors would like to thank the Graduate Research Committee at Georgia State University College of Business Administration for its support.

1. *Annual Handbook of Labor Statistics* (1986); Sharkey & Buckle, *The Medicare Prospective Payment System: Impact on the Frail and Elderly and an Alternative Reimbursement Formula*, 3 J.L. ETHICS PUB. POL. 227, 228 n.3 (1988) (citing Bureau of Labor Statistics Historical Tables); Waldo, Levit & Lazenby, *National Health Care Expenditures*, 8 HEALTH CARE FINANCING REV. 3, 3-7 (1986). Between the years 1965 and 1985, the CPI rose on average 6.16%, while the corresponding increase in the medical CPI was 12%. During the same time period Medicare outlays increased almost 28% annually. *See* Gibson & Waldo, *National Health Care Expenditures*, 4 HEALTH CARE FINANCING REV. 1, 3 (1982).

2. *See generally* Pauly, *Medical Insurance and Hospital Behavior*, in NEW DIRECTIONS IN PUBLIC HEALTH CARE (Lindsay ed. 1976). For example, reimbursements for hospital inpatient services, which represent 71% of total Medicare expenditures, increased at an annual rate of 20% during the 1970s.

thermore, hospital administrators maintain that cost-based reimbursement plans do not pay enough to cover the costs incurred by their beneficiaries. Consequently, hospitals were forced to raise their charges to privately insured patients to subsidize these costs.[3]

In an attempt to control health care inflation during the 1970s and early 1980s, some states (New York, New Jersey, Maryland, and Massachusetts) established mandatory rate setting programs, while others (Florida and California) advocated more competitive, market-oriented solutions.[4] The most important policy change, however, occurred at the federal level in 1983 when Congress implemented the Medicare prospective payment system (PPS).[5] Prior to Congress' action, Medicare reimbursed hospitals on a cost basis for inpatient services rendered to its beneficiaries.[6] Under cost-based reimbursement, Medicare payments were directly related to actual operating costs.[7] Congress believed that PPS would alleviate the inefficiency and lack of budget control associated with cost-based reimbursement. Payments for capital related expenses, however, are still reimbursed on a retrospective-cost basis, although this exemption is likely to be eliminated in the future.[8] This exemption was made to accommodate those hospitals which might encounter serious financial problems adjusting to a fixed-rate reimbursement system because the costs of investment projects generally span several years.

Under PPS, the hospital receives a payment that reflects the complexity of each discharged patient's case. Predetermined rates are

---

3. Dranove, *Pricing by Non-Profit Institutions: The Case of Hospital Cost Shifting*, 7 J. HEALTH ECON. 47 (1986). *See also* Meyer & Johnson, *Cost Shifting in Health Care: An Economic Analysis*, 2 HEALTH AFFAIRS 20 (1983).

4. Some states enacted rate setting laws in the early 1970s. *See* Cone & Dranove, *Why Did States Enact Hospital Rate Setting Laws*, 29 J. LAW & ECON. 287 (1986) (suggesting that these regulations were implemented in an attempt to keep Medicare payments low); *see also* Biles, Schramm & Atkinson, *Hospital Cost Inflation Under Rate Setting Programs*, 303 NEW ENG. J. MED. 664 (1980) (rates rose 11.2% annually in states with rate setting programs compared to 14.3% in states without these regulatory interventions); Shortell & Hughes, *The Effects of Regulation, Competition and Ownership on Mortality Rates Among Hospital Inpatients*, 318 NEW ENG. J. MED. 1100 (1988) (both highly regulated states and those with procompetitive policies have higher mortality rates than states without these strategies).

5. Pub. L. No. 98-21, Stat. 65 (codified at 42 U.S.C. § 1394(f) (Supp. I 1983)). *See also* 42 C.F.R. § 412 (1987) (current implementation of congressional mandate).

6. *See, e.g.*, 45 C.F.R. § 447 (1984) (description of former retrospective cost reimbursement scheme).

7. *Id.*; *see also* Danzon, *Hospital Profits: The Effect of Reimbursement Policies*, 1 J. HEALTH ECON. 29 (1982).

8. *See* Congressional Budget Office, *Including Capital Expenses in the Prospective Payment System* (1968) [hereinafter CBO Study].

calculated for 473 diagnostic related groups (DRGs).[9] If this payment is lower than actual costs, the hospital must absorb the loss; but if the payment exceeds costs, the hospital is permitted to keep the difference. Undoubtedly, hospitals will respond to the changes in incentives that accompany this new reimbursement scheme.[10]

This article examines the behavioral implications of PPS. Part II compares cost-based and prospective reimbursement. Part III discusses the economic incentives that accompany prospective reimbursement. Part IV considers the advantages and disadvantages of incorporating capital expenses into the prospective payment.

II. MEDICARE REIMBURSEMENT POLICY: A LOOK AT THE OLD AND THE NEW

A. *Cost-Based Reimbursement*

Under cost-based reimbursement, the amount that Medicare paid hospital for services rendered to beneficiaries was determined by a reimbursement formula. This mechanism, referred to as the ratio of charges to charges allocated to costs,[11] operates as follows. First, overhead costs were allocated among each of the revenue-producing departments in accordance with the Medicare guidelines. Certain costs, such as those associated with administration, were allocated in proportion to the direct costs incurred in each revenue-producing department. The Medicare guidelines disallowed reimbursement of specific overhead costs, such as bad debts to non-Medicare patients.[12]

The next step involved calculating hypothetical charges to Medicare patients for services rendered in each of the revenue-producing departments. This amount was equivalent to what the hospital would receive if Medicare paid full charges for all its beneficiaries. Similarly, the hospital then calculated total hypothetical charges in each revenue-producing department for all patients in the hospital (both Medicare and non-Medicare). The ratio of total hypothetical Medicare charges to

---

9. 48 Fed. Reg. 39,757 (1983).

10. PPS was phased in over a four year period. This transition period was established to allow the portion of the DRG rate based on historical costs to decline while simultaneously increasing the component based on national rates. Beginning in fiscal year 1988, payments for most hospitals were based on national rates. The exceptions were urban and rural hospitals located in New England and the East North Central divisions, as well as rural hospitals located in the Middle Atlantic and South Atlantic regions. Medicare payments to these institutions are 85% nationally and 15% regionally.

11. For a more detailed explanation of the process, see 45 C.F.R. § 447 (1984); Danzon, *supra* note 7, at 29-33.

12. Danzon, *supra* note 7, at 29-33.

total hypothetical charges for all patients was computed for each revenue-producing department. Each department ratio was then multiplied by total department costs to calculate the fraction of costs which Medicare paid. Finally, Medicare's share of costs in each of the revenue-producing departments were summed to obtain the total amount billed to Medicare.[13]

Allowable costs reimbursed by Medicare were constrained by two factors. First, Medicare paid a ceiling amount per diem for room and board services rendered to its beneficiaries. Second, the total costs incurred by Medicare patients could not exceed hypothetical Medicare charges. "Relevant hypothetical Medicare charges" were defined as total hypothetical Medicare charges multiplied by the charge collection ratio.[14] In other words, Medicare paid the lower of either costs or charges.

B. *Prospective Payment System*

PPS applies primarily to acute care hospitals. Specialty facilities, such as psychiatric institutions, rehabilitation centers, and long-term care hospitals are exempt from PPS. Furthermore, rehabilitation,[15] long-term care,[16] psychiatric and alcohol/drug units[17] of acute care hospitals meeting specific criteria may qualify for exclusion from PPS. Exempt facilities and units continue to be reimbursed on a cost basis.[18]

Payments to PPS hospitals are made at predetermined rates per Medicare discharge for each of the 473 DRGs. The DRG classifications recognize principal diagnosis, secondary diagnosis, surgical procedure, age, and sex. The payments, derived from average Medicare per case costs in 1981, are adjusted to recognize differences in area wage levels, location classifications (urban versus rural), and teaching activity. The amount paid to each hospital is the product of a national standardized amount per case and the appropriate DRG weight or casemix index. The DRG weights reflect the relative resource intensity, or costliness, of providing care to Medicare patients in each of the 473 DRGs.[19]

---

13. *Id.*
14. *Id.*
15. 45 C.F.R. § 412.23(c) (1987).
16. *Id.* § 412.23(b).
17. *Id.* § 412.32.
18. 48 Fed. Reg. 39,761-762 (1983).
19. Standardized amounts are calculated separately for urban and rural hospitals. 42 C.F.R. §§ 412.101-.104 (1987). Three adjustments are made to determine the per case amount paid to each hospital. The first adjustment involves multiplying an area wage index by the labor portion of the standardized amount. Second, rates for hospitals with approved medical education programs are increased by about 8% for each 10% increase in the ratio of residents to beds. Finally, hospitals serving a disproportionate share of low-income patients receive extra payments. *Id.*

Furthermore, PPS makes special payments for "outliers,"[20] that is, cases with either extremely long hospital stays or very high costs relative to the average for the appropriate DRG.

PPS is designed to cover only hospital inpatient services. In contrast, payments for capital,[21] direct medical education,[22] kidney transplants,[23] outpatient facilities,[24] and bad debt attributable to Medicare patients[25] are still reimbursed on a retrospective cost basis. Physician services are not covered by DRG reimbursement because these services are billed separately.[26]

III. EFFECTS OF DRG REIMBURSEMENT ON HOSPITAL BEHAVIOR

Under cost-based reimbursement, hospitals had the incentive to increase length of stay and incur higher costs because they would receive more revenue from Medicare. In contrast, since the prospective reimbursement system pays a fixed amount per diagnosis, hospitals have incentive to reduce length of stay.[27] Hence, many policymakers contend that DRG regulation will at least partially alleviate health-care inflation since this system contains the necessary incentives for hospitals to control costs. Nevertheless, the incentives promoting cost consciousness may cause hospitals to act in ways that are harmful to consumer welfare.[28]

First, some of the DRG rates are likely to be too low. That is, for specific diagnoses, the reimbursement rates do not compensate hospi-

---

20. 42 C.F.R. §§ 412.80-.82 (1987). "Outliers" are atypical cases having either significantly longer stays or significantly higher costs than those of typical cases.

21. *Id.* § 412.113(a).

22. *Id.* § 412.113(b).

23. *Id.* § 412.114.

24. *Id.* § 412.1.

25. *Id.* § 412.115(a).

26. *Id.* § 405. The government, however, is thinking of altering the way it pays physicians from a reasonable-cost basis to a prospective basis. *See Medicare Plan Would Shift Doctor's Pay*, Wall St. J., Sept. 29, 1988, at 34, col. 2.

27. 42 C.F.R. § 405 (1987). A potential problem will arise if Medicare reduces payments at a faster rate than technology will allow. This situation, referred to as rate compression, may cause hospitals to lose money. It is not clear, however, whether this phenomenon is a long or short run phenomenon. *See* Lave, *Is Compression Occurring in DRG Prices?*, 22 INQUIRY 142 (1985). If prices are reduced too much, quality of care will undoubtedly deteriorate. An analogous situation arises in the case of a landlord owning rental property. The landlord has no incentive to maintain rental property when the remuneration is too low.

28. Dranove, *Rate Setting by Diagnostic Related Groups and Hospital Specialization*, 18 RAND J. ECON. 417 (1987).

tals for legitimate cost variations that exist among categories of patients within a particular DRG category.[29] As a consequence, hospitals may specialize and treat patients with the lowest expected costs relative to the reimbursement levels. Although this form of specialization reduces costs, it also distorts output.[30] Rather than developing cost-saving technologies that reduce input costs, hospitals have the incentive to screen patients prior to admittance in order to avoid treating high-cost patients. Thus, by refusing to treat high-cost, low-reimbursement cases, the hospital is able to increase profits.[31] This type of specialization becomes more difficult, however, as the cost variation within a DRG category increases. If these circumstances evolve for several of the more frequently occurring diagnoses, then DRG regulation may prove to be an ineffective mechanism for controlling costs.[32]

A second problem with DRG reimbursement arises because, as the rates are calibrated to national levels, hospitals will be prone to shift costs from Medicare to privately insured patients. In fact, research shows that nonprofit institutions, which account for eighty-six percent of the market, raised charges to privately insured patients when Medicare reduced its reimbursement rates.[33]

A further complicating factor surrounds the principal/agent relationship between the hospital and physician, and between the physician and patient. Conflicting incentives arise under PPS because the physician acts as the agent of both the patient and the hospital. Since physicians choose the level of services for their patients, a trade-off exists between patient welfare and hospital profits. If physicians value hospital profits over patient welfare, PPS will result in an underprovision of services.[34] In contrast, under cost-based reimbursement, many unnecessary procedures were performed since physicians increased hospital profits by providing these services.[35]

IV. INCORPORATING CAPITAL EXPENSES INTO THE PROSPECTIVE PAYMENT SYSTEM

A hospital's capital refers to its physical assets and liabilities, such as land, buildings, equipment, and debt. Capital costs are the flow of

---

29. *Id.* at 417-18.

30. *Id.*

31. *Id.*

32. *Id.*

33. Dranove, *Pricing by Non-Profit Institutions: The Case of Cost Shifting*, 7 J. HEALTH ECON. 47 (1988).

34. Ellis & McGuire, *Provider Behavior Under Prospective Reimbursement: Cost Sharing and Supply*, 5 J. HEALTH ECON. 129, 135-39 (1986).

35. *Id.*

recurring expenses (i.e., interest, depreciation, rent, taxes, return on equity, and costs of leasing equipment) associated with the use of capital.[36] Capital costs, contrary to operating expenses, vary considerably among institutions. The higher variability of capital costs is attributable to the cyclical nature of these expenses. Interest expenses for investment projects are generally high at first and decline thereafter as the principal is gradually repaid. Another contributing factor to variability is the increasing costs of construction. Because of high inflation, hospitals with older facilities and equipment were probably able to acquire these assets at much lower costs than hospitals with newer facilities.[37]

Medicare reimburses hospitals for a "reasonable" share of capital related costs associated with the treatment of Medicare beneficiaries.[38] However, cost-based reimbursement for capital expenses has been severely criticized for at least three reasons. First, it is difficult to determine the correct amount of capital expenses attributable to Medicare patients.[39] Second, this reimbursement mechanism contains no incentives for hospitals to make efficient investment decisions.[40] Finally, under cost-based reimbursement, the federal government has no control over Medicare payments for capital.[41]

The first problem arises because estimating capital related expenses and the subsequent calculation of Medicare's share are subject to a great deal of uncertainty and measurement error. Capital costs are generally underestimated because depreciation is calculated on the basis of historical costs rather than replacement costs.[42] Furthermore,

---

36. Medicare employs the straight-line depreciation method. Thus, annual depreciation cost is constant and equal to the acquisition cost less salvage value, the sum of which is then divided by the asset's useful life. After 1989, the return on equity payments to proprietary hospitals will be eliminated. Moreover, in recent years Congress has enacted across the board reductions in capital-related reimbursements. Reasonable capital costs were reduced by 3.5%, 10%, and 15% in 1987, 1988, and 1989, respectively. *See* Omnibus Reconciliation Act of 1986 (Pub. L. No. 99-509); Omnibus Reconciliation Act of 1987 (Pub. L. No. 100-203).

37. CBO Study, *supra* note 8, at 10. *See generally* D. COHODES & B. KINKEAD, HOSPITAL CAPITAL FORMATION IN THE 1980S (1984); Sloan, Morrisey & Valvona, *Capital Growth of Multihospital Systems*, 7 ADVANCES IN HEALTH SERVICES RESEARCH 83 (1987).

38. 42 C.F.R. § 412 (1987).

39. This is because the provision of services to Medicare patients and the provision of service to private insurance patients are essentially joint products. If capital is considered to be a shared cost in the production of both types of service then there will be no unique method of allocating the costs of capital expenses to the two groups. S. BERG & J. TCHIRHART, NATURAL MONOPOLY REGULATION: PRINCIPLES AND PRACTICE 171 (1989).

40. *See generally* Danzon, *supra* note 7. *See also* Sloan, Morrisey & Valvona, *Capital Growth of Multihospital Systems*, 7 ADVANCES IN HEALTH SERVICES RESEARCH 83 (1987).

41. CBO Study, *supra* note 8, at 1, 17.

42. *Id.* at 10.

if a hospital finances an investment project using internal funds, the implicit interest costs are not included in capital costs.[43] Yet, if these funds are invested in paper assets, then the earnings may be deducted from interest costs.[44]

Calculating Medicare's share of capital expenses is also a source of measurement error. The costs of routine services are allocated on the basis of Medicare's share of total inpatient days whereas the costs of ancillary services are appropriated using Medicare's share of inpatient charges. Measurement problems arise because the arbitrary accounting rules do not accurately account for unused capital. And, since occupancy rates have declined significantly over the last decade, the costs of treating Medicare patients will be overstated.

A second criticism is that cost-based reimbursement insulates hospitals from the normal risks of investment decisions. Since all interest costs are reimbursed, the hospital administrators have no incentive to seek out low interest loans. Moreover, Medicare reimburses all interest and depreciation costs regardless of the occupancy rate. Therefore, hospitals tend to acquire excess capital which subsequently results in underutilized facilities.[45] A related concern is that certain hospitals (especially those with high indigent caseloads) may be unable to borrow at reasonable costs because they do not generate sufficient net operating revenues. The current system offers little assistance to hospitals that are unable to generate capital either through loans or by issuing bonds. Inadequate funding for investment projects may result in inefficient as well as low quality care for Medicare patients. Finally, the current reimbursement structure, which pays for operating costs prospectively and capital costs retrospectively, promotes inefficiency because it encourages hospitals to invest in capital.[46]

The third problem is that the federal government has no control over capital expenses. Since Medicare reimburses whatever costs hospitals incur, capital payments are apt to be unrelated to the level of services provided by the hospital. As a consequence, capital expenses may escalate more rapidly than growth in admissions or prices of other inputs. Operating costs, on the other hand, are more controllable because they are reimbursed a fixed amount per case.[47]

---

43. *Id.* at 6.

44. Some exceptions exist. For instance, hospitals may retain any interest they earn on funded depreciation, endowments, and pension assets.

45. CBO Study, *supra* note 8, at 6.

46. *Id.*

47. Ellis & McGuire, *supra* note 34, at 129-30.

When PPS was enacted, capital costs were excluded from the DRG reimbursement schedule.[48] This provision was made to accommodate the wide variance of capital costs among hospitals. As a consequence, some institutions were required to make larger adjustments for capital expenses than for operating expenses.[49] An additional concern was that under a fixed-rate reimbursement system, capital payments would not necessarily match capital expenses.[50] Moreover, lenders might be less willing to finance investment projects if payments are not directly related to capital costs.[51] These considerations implied that some hospitals might become financially distressed while adjusting to the new prospective system, whereas others might receive greater reimbursements than their actual costs warranted.

Furthermore, reimbursing capital expenses according to fixed-rates would only reinforce the weaknesses of the current PPS covering operating costs. Under DRG reimbursement, hospitals have incentive to avoid treating patients with complicated conditions, and to discharge patients earlier than medically desirable.[52] This incentive exists because under PPS, hospitals receive little or no additional payments for treating more complicated cases. Incorporating capital into the PPS would only exacerbate the tendency of hospitals to engage in these undesirable actions.

Nonetheless, despite these concerns, it seems inevitable that Congress will establish a DRG reimbursement schedule for capital costs in the near future.[53] Expanding PPS to cover capital costs would alleviate two major shortcomings of cost based reimbursement — inefficiency and lack of budget control. Medicare payments would be determined by the number of patients discharged rather than by the costs of treatment. This change in incentives should make hospitals more efficient in their use of capital. In addition, a fixed-rate reimbursement would enable the Medicare program to keep capital payments under their direct control.

The major reason policymakers have delayed implementing a fixed-rate reimbursement system for capital costs relates to the design of

---

48. 48 Fed. Reg. 39,754 (1983).

49. CBO Study, *supra* note 8, at 1.

50. *Id.* at 2.

51. *Id.* at 16.

52. Friedman, *Dumping Dilemma: The Poor Are Always With Some of Us*, 56 HOSPITALS 51 (1982).

53. It is likely that Congress will attempt to alter capital reimbursement since Congress has started to think about the problem and has asked the Congressional Budget Office to make a preliminary study. *See* CBO Study, *supra* note 8, at 1.

the new payment mechanism. In particular, the primary concern is how to implement a PPS for capital which has only minimal adverse effects on hospitals, patients, and the federal budget deficit. For this reason, many policymakers suggest establishing prospective payment for capital costs with some type of transition policy.[54] This approach represents a trade-off between immediate PPS and cost-based reimbursement.

Clearly, a transition mechanism would help those hospitals which might become financially distressed under a fixed-rate reimbursement for capital expenses. A wide range of transition devices could be implemented, either separately or in conjunction with others, to mitigate some of the potential problems that are likely to occur if a prospective payment system for capital is adopted immediately. Some alternatives currently being considered are: enacting prospective payment for capital at some future specified date; exempting certain hospitals; blending the prospective amount with hospital specific costs; making "outlier" payments for exceptionally high cost cases; and grandfathering existing capital and thereby allow continued cost-based reimbursement for capital commitments before some date in the past.[55]

Besides implementing a combination of these devices, the basic policies could be adapted in other respects as well. For instance, movable equipment could be treated differently from buildings and fixed equipment. One option would be to implement prospective payment immediately for movable equipment because it has a relatively short useful life. On the other hand, fixed capital such as buildings, which are generally long lived, could be reimbursed using one of the transition mechanisms.

V. CONCLUSION

Under cost-based reimbursement, hospitals had incentive to increase length of stay and render unnecessary services because Medicare reimbursement was directly related to actual costs. Congress enacted a prospective fixed-rate reimbursement in 1983 to alleviate the inflation and lack of budget control associated with cost-based reimbursement. Nonetheless, fixed-rate reimbursement may have deleterious effects on consumer welfare.

Congress has indicated that it is considering expanding PPS to cover capital related expenses.[56] Originally, these costs were exempt

---

54. CBO Study, *supra* note 8, at 33.

55. The advantages and disadvantages of these transition mechanisms are discussed in greater detail in CBO Study, *supra* note 8.

56. The CBO Study was requested by the Senate Subcommittee on Health. *See* CBO Study, *supra* note 8, at 1.

from PPS because policymakers believed that some hospitals would encounter serious financial problems adjusting to a fixed-rate reimbursement system.[57] Thus, a transition policy was needed to mitigate any potential adverse effects that might accompany a PPS for capital expenses.

It should also be noted that cost-based and prospective reimbursement share a common deficiency. Neither approach accurately indicates the amount Medicare should pay hospitals for capital expenses. The initial prospective amounts for operating costs were established on the basis of historical costs. If a similar strategy is employed to establish the prospective rates for capital, then the payments would be subject to the same measurement and apportionment errors associated with cost-based reimbursement. On the other hand, it would be even more difficult to set the prospective rates on expectations regarding future capital requirements.

---

57. CBO Study, *supra* note 8, at 2.