

Part Two
Critical PPS Impact Areas

Chapter 5

Expenditures and Costs

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Expenditures and Costs

INTRODUCTION

This chapter examines the issues for evaluation raised by Medicare's prospective payment system (PPS) regarding health care expenditures and costs. First, it is necessary to distinguish among the various meanings of the terms "cost" and "expenditure." Though often used as synonyms, these terms actually represent distinct concepts. The "cost" of a health service (or class of services) is defined here as the value of the productive resources (e. g., personnel, materials, capital plant and equipment) that are used in the production of the health service. The "expenditure" for a health service is the amount actually paid in exchange for the service. To those who pay for health care, expenditures are synonymous with costs. However, the costs of serving a set of patients may be different from the expenditures made by them or on their behalf if one class of

patients subsidizes another or if providers of health care make excessive profits (or losses).¹

The difference between the expenditure for a health service made to a provider (*revenue* to the provider) and the cost of providing the service is referred to here as "surplus" (or profit, if the provider is a for-profit entity). It is worth noting that, in the aggregate, providers' revenues are not necessarily equal to their total *charges*, since some third-party payers, particularly Blue Cross/Blue Shield plans, Medicare, and Medicaid, pay at rates below full charges.

¹In economic theory, profits are expected to be just high enough to induce suppliers of a product to stay in the market to meet the demand. In a perfectly competitive industry, where entry and exit are entirely free and no artificial pricing policies are followed, profits would tend to stay at the minimum level. Excess profits higher than that level can occur when the producers of a service have some measure of monopolistic power.

POTENTIAL IMPACTS OF PPS ON EXPENDITURES AND COSTS

Through a combination of fixed prices for each type of care and limits on the annual rate of increase in the fixed per-case prices, Medicare's PPS forces hospitals to reduce the costs of treating hospitalized patients. As currently structured, however, PPS provides imperfect control over aggregate Medicare hospital expenditures, in part because the number of admissions and the reported or actual diagnosis-related group (DRG) case mix can change.² Also, certain kinds of hospitals and hospital units (e. g., psychiatric, rehabilitative, major cancer centers) are currently exempted from PPS. Some admissions could shift into these institutions.

²In recognizing these potential avenues for increases in aggregate expenditures, the designers of Medicare's PPS charged the peer review organizations (PROs) with the responsibility for monitoring admissions and DRG assignments. Whether these organizations can actually control admissions or DRG assignments remains to be seen. Wennberg and colleagues have demonstrated the existence of substantial geographical variation in admission rates by DRG, suggesting a diversity of clinical standards and potential for admission rate increases that can be easily defended by the medical community (390)

Expenditure and Cost Shifts

In order for PPS to reduce Medicare inpatient hospital expenditures from what they would have been had cost-based reimbursement continued, one or more of three things must occur:

- the cost of treating patients is shifted from hospitals to other settings of care;
- hospitals reduce the cost of treating inpatients; or
- a portion of the cost of treating Medicare patients is borne by third-party payers other than Medicare.

Each of these scenarios has implications for the efficiency and fairness of PPS. Absolute reductions in the cost of treating hospital inpatients without shifting costs to other settings are, of course, most desirable provided that they do not come at the expense of the quality of hospital care. If cost reductions are accomplished by serving patients in settings outside the hospital, which must

also be paid for, then the actual control of Medicare's hospital expenditures will be somewhat offset by additional expenditures in other parts of the program (or by patients themselves). If hospitals finance the treatment of Medicare patients by raising charges to other patients, serious questions of equity arise. Of course, it is also possible that hospitals may be able to reduce per-case costs by so much that Medicare inpatients become profitable relative to others, generating a surplus that could be used to subsidize care to other kinds of patients. An evaluation of the impacts of PPS would be incomplete without some understanding of the extent to which each scenario has occurred.

Although PPS offers clear financial incentives to substitute care provided outside of hospitals for care that would otherwise have been provided within, the extent of such substitution and the net impacts on Medicare nonhospital expenditures are difficult to predict. The services apart from inpatient services reimbursed by Medicare include those provided by physicians, outpatient departments, skilled nursing facilities (SNFs), home health agencies, and nonphysician suppliers such as laboratories and durable medical equipment suppliers. In 1982, physicians received 23 percent of Medicare reimbursements; outpatient departments received 5 percent, nonphysician Part B suppliers 4 percent, home health agencies 2 percent, and SNFs 1 percent (341).

The aggregate impact of PPS on Medicare's expenditures for physician services may be small, with a slight decline in the early years.³ In 1981, 64 percent of physician services paid for by Medicare were provided in an inpatient setting, although only 24 percent of Medicare beneficiaries were hospitalized in that year (50). One physician visit for each day of hospitalization is the custom for nonsurgical cases. If lengths of stay in the hospital are reduced, one would expect a direct effect on the number of physician visits. Shorter stays would also reduce the potential for consultative visits for both medical and surgical discharges. Conversely, if the number of hospital ad-

³A recent analysis of the impact of State hospital ratesetting systems on physicians' income revealed that physician incomes grew more slowly between 1980 and 1982 in these States than in unregulated States (407).



Photo credit: " Fairfax- Hospital Association

PPS offers incentives to substitute outpatient care for traditional inpatient care for a number of services, including physical therapy. The net impact on system costs of such substitutions is difficult to predict.

missions increases so that total Medicare hospital days of care increase, then physician visits may increase to some extent.

Skilled nursing homes and home health services are often seen as substitutes for hospital services rendered in the postoperative or pre-discharge phases of the hospital stay. To the extent that they can shorten lengths of stay by discharging inpatients to a lower level of care facility or to their home, hospitals can take full advantage of the incentives of PPS. Hospitals may increase their efforts with respect to discharge planning, potentially increasing the demand for skilled nursing and home care. Yet Medicare coverage of skilled nursing care is quite limited (20 days of care with total coverage, and an additional 80 days with a 50-percent copayment), and there has been a chronic excess demand for nursing home beds. This excess demand is likely to continue, largely because most SNF expenditures for Medicare patients are made by the State Medicaid programs, which have had low reimbursement rates (101). The net expenditure impact of increases in the use of nursing homes by Medicare beneficiaries may be greatest for the beneficiary, who must pay for 50 percent of the cost after 20 days.

Home health services can be expected to increase as a result of PPS. Medicare reimbursement for home health care is largely cost-based, and home health benefits were expanded in 1980 and

1981 to encourage the use of home health care (306).⁴ Consequently, these services represent a ready source of diversification for hospitals (53,190,195).

Medicare beneficiaries themselves share in the cost of medical care, but at different rates depending on the type of service. The amount of cost-sharing required of the beneficiary depends on the statutorily defined deductible, the coinsurance rate, and limitations on coverage. Each type of service (hospital inpatient, physician visits, skilled nursing home, etc.) has different rules. Therefore, a change in the mix of services consumed has implications not only for Medicare's expenditures but also for the share of expenditures borne by the beneficiary.

For the approximately 12 percent of Medicare beneficiaries who are also eligible for Medicaid, the increase in the burden on the beneficiary may be largely borne by Medicaid (324). Frequently, Medicare patients become eligible for Medicaid sometime after they are placed in nursing homes for long-term care. To the extent that these patients are moved to nursing homes earlier under PPS than they would have been under cost-based reimbursement, Medicaid obligations will increase. The amount of increase is likely to be small, however,

The ultimate impact of PPS on private third-party payers' expenditures for hospital care is difficult to predict and will probably vary among different kinds of payers. The incentives offered by PPS for hospitals to become more efficient in providing care to inpatients could spill over to other types of patients, thereby reducing the costs of providing services to these patients and possibly the amounts that such patients or their third parties must pay. Also, the first year's DRG prices were based largely on the historical costs of providing hospital inpatient services to Medicare patients. If hospitals can rapidly realize economies in serving those patients—and recent evidence from the first year of PPS suggests that they have

(see ch. 3)—surpluses will increase. These surpluses could be used for a variety of purposes, including reduction in the share of costs paid for by other payers. Some evidence suggests that PPS may actually lead to lower charges for private third-party payers, because under cost-based reimbursement, hospitals raised their charges in response to the rule that Medicare would pay the lesser of costs or charges (75). Yet the apprehension of many private third-party payers is that the effects of PPS will be to lower Medicare reimbursements without reducing hospitals' costs of producing services, thus leading to increases in charges to other payers.

Some third-party payers have greater market power than others and can avoid subsidizing other classes of payer. Blue Cross plans, for example, often pay on the basis of costs or receive a discount from charges (16), and State Medicaid programs have increasingly imposed their own payment limits on hospitals. Patients who must pay for their own care or who have commercial insurance are often in the position of paying the hospital's full charges. To the extent that these charges reflect the costs that go unpaid by Medicare, charge-paying patients will be subsidizing Medicare patients.⁵

Distribution of Financial Effects Among Hospitals

Because Medicare's PPS generally pays each hospital a fixed price per discharge while the use of resources for patients in a specific DRG may vary widely, PPS establishes a pattern of financial winners and losers across Medicare patients and the hospitals that serve them. An uneven distribution of profits and losses across patients has three problems associated with it. First, it creates an incentive for hospitals to position themselves to treat winner cases and to avoid losers (219). To the extent that such cases can be identified before admission, serious implications for access arise (see ch. 7). Second, random and unpredictable variation in costs creates a financial risk that

⁴The General Accounting Office is currently addressing the information requirements for assessing the impact of PPS on the long-term care system. A preliminary report under that study described changes observed in six cities that support the contention of rapid growth in the use of home health care resulting from PPS (297).

⁵It is often asserted that charge-paying payers also bear the greatest share of the burden of subsidizing hospitals' delivery of uncompensated care (i. e., care to people with inadequate insurance or third-party coverage) (126,203).

is borne by the hospital. Because this risk varies inversely with the volume of cases, small hospitals or those with low-volume DRGs suffer a disproportionate burden of financial risk associated with cost variation. Third, some hospitals, by virtue of their mission or location, may find themselves serving a disproportionate share of high cost patients. Referral centers and public hospitals for example, may be subject to this kind of bias (384). To make such hospitals bear the financial burden of higher cost patients not only would be inequitable, but also might ultimately lower the quality of care being provided to those served in such institutions.

Revenues vary across hospitals independently of differences in patient characteristics. The reason is that hospitals are paid different rates per DRG depending on their area wage index, their urban or rural location, and (temporarily) the region of the country in which they are located. In addition, teaching hospitals receive an extra payment to account for the extra patient care costs associated with teaching. Presumably, the differences in DRG payment rates mirror differences in the costs of providing care that are outside the hospital's control. However, whether the DRG pricing structure is refined enough to accurately reflect uncontrollable differences in input costs is subject to question. Many hospitals in rural counties on the fringe of major metropolitan areas, for example, have claimed that the urban/rural rate differential financially discriminates against them (232). The Social Security Amendments of 1983 (Public Law 98-21) mandated the elimination of regional differences in DRG payment rates at the end of 3 years on the assumption that any regional differences in costs are due to systematic and un-



Photo credit Fairfax Hospital Association

Data on hospital costs remain an important source of information as to whether DRG-specific profits and losses vary across types of hospitals.

justifiable differences in medical practice patterns in different parts of the country. That such differences exist has been thoroughly documented (57), but it is unclear whether hospital managers can adjust to uniform rates by changing their own and their physicians' behavior so quickly, or whether such uniformity in practice style is even a desirable outcome of PPS,

If the DRG pricing structure does not adequately reflect uncontrollable differences in input costs, certain hospitals will systematically have higher or lower surpluses than average. Even simple changes in the method of computing relative DRG prices can produce redistributions of revenue that are unrelated to hospitals' behavior (169). Not only are such arbitrary redistributions of revenue unfair to the hospitals that lose, but the patients who tend to be treated in such hospitals may have their access and quality of care jeopardized.

APPROACHES TO EVALUATING THE IMPACTS OF PPS ON EXPENDITURES AND COSTS

Critical Evaluation Questions

The previous discussion raises five critical questions regarding the impact of PPS on health care expenditures and costs:

- To what extent has PPS been successful in controlling Medicare expenditures for inpatient hospital care?
- What effect has PPS had on Medicare expenditures for outpatient and nonhospital services?
- What effect has PPS had on Medicare beneficiaries' expenditures for health care?
- How well does PPS cover the costs of providing inpatient care to Medicare beneficiaries?

- To what extent are variations among hospitals in profitability of Medicare patients due to factors beyond the hospitals' control, such as variations in severity of cases, the socio-economic status of the patients, or input prices?

Potential approaches to addressing each of these questions and problems that might arise are discussed below.

Evaluating the Effects of PPS on Medicare Expenditures for Inpatient Hospital Care

Since Medicare pays a single per-case price for each DRG, once the average price is set, total Medicare expenditures for hospital care will vary with three factors that can be deliberately manipulated by hospital administrators and physicians:

- the total number of admissions to hospitals subject to PPS;
- the reported distribution of PPS admissions across DRGs; and
- the total number of admissions to hospitals and units exempted from PPS.

Estimating the contribution of each of these three factors to the observed rate of change in Medicare hospital expenditures is a straightforward task, but interpreting such changes is difficult. The three factors can be expected to vary from year to year with changes in characteristics of the Medicare population, the introduction of new medical technologies that alter the demand for hospital care, and random variations in the incidence of illness. The challenge is to estimate the extent to which changes in the pattern of admissions and case mix result from deliberate actions by hospitals to maximize the surplus obtainable from Medicare. If PPS is unable to adequately control Medicare hospital expenditures, it is unlikely to survive in the long run.

Hospitals' ability to manipulate patterns of admissions and reported case mixes is limited not only by the oversight of PROS, but by ethical, legal, and practical constraints: perfectly healthy

¹⁰A recent analysis of the 8.4-percent increase in hospitals' reported DRG case mix between 1981 and 1984 estimated that changes in coding practices accounted for about 75 percent of the increase and actual changes in medical practices for only 25 percent (55).

people will not be hospitalized; an admission for cataract surgery will not purposely be coded as cardiac surgery; patients will not be admitted to psychiatric hospitals for treatment of asthma. Moreover, what changes in admission patterns and case-mix reporting do occur are likely to be concentrated in the early years of PPS as hospitals adjust policies and procedures to the new financial incentives.

To address the question of whether changes in admissions and coding practices occur, annual data are needed on Medicare admissions by DRG and type of hospital and on characteristics of the Medicare population (e.g., age distribution) for a period before and after the introduction of PPS. Pre-PPS data can be used to establish preexisting trends and variations for comparison with post-PPS experience. Admissions data based on hospital bills are readily available at the Health Care Financing Administration (HCFA) for a period extending from the mid-1970s to the present, but the accuracy of DRG assignments made on pre-PPS bills is questionable. Prior to fiscal year 1983, diagnostic and procedural coding was not necessary for payment, so hospitals had no incentive to provide complete information. Surgical procedures were probably underreported; the distribution of admissions, therefore, was skewed toward medical DRGs (194). This kind of bias in diagnostic and procedural coding complicates analysis of admission patterns. It suggests that observed changes in patterns of admissions by DRG may be difficult to interpret from Medicare billing data alone and that more detailed studies are warranted of selected DRGs that appear to have undergone substantial changes in admission rates.

Evaluating the Effects of PPS on Medicare Expenditures for Nonhospital Services

As discussed above, Medicare expenditures for services other than inpatient care will be affected by PPS, but the extent and, in some cases, the direction of such effects cannot be predicted well. To know whether PPS is meeting its cost-containment objectives, however, these effects must be known.

Aggregate statistics on Medicare program expenditures are readily available by program cat-

egory (home health agency, physician services, SNF, etc.). Comparing post-PPS rates of growth in these expenditure categories with pre-PPS rates offers little insight into the contribution of PPS, however, because each category has undergone substantial changes in Medicare policy concurrent with the phase-in of PPS. For example, in 1983, Medicare tightened the rules governing the allowed frequency of skilled nursing visits by home health care agencies (136). It is virtually impossible to separate the effects of this change in policy from PPS effects by analyzing time trends in aggregate expenditures for home health services.

Patient-based studies of changes in the patterns of utilization of hospital and nonhospital services will be needed to identify PPS effects with greater accuracy. Because the most immediate effects of PPS are likely to involve changes in hospitalization rates, it would be useful to compare pre- and post-PPS patterns of nonhospital care for Medicare patients who have been hospitalized. Such detailed patient-specific analyses of hospitalized patients would provide an opportunity to isolate the effects of PPS more fully, though not perfectly.

To analyze the complete pattern of utilization of services and health care expenditures for a sample of beneficiaries who were hospitalized, Medicare billing records for both Part A and Part B providers would have to be integrated by beneficiary. Since each beneficiary has a unique identifier number, the development of integrated files for analysis is technically feasible. A later section of this chapter discusses the current ability of Medicare data systems to produce data of this kind.

We should, nevertheless, not expect too much precision from detailed statistical analyses of the full Medicare utilization and expenditure impacts of PPS. At best, such analyses are likely to provide upper or lower limits on estimates of expenditure effects, and a great deal of judgment will be required to interpret statistical findings. These difficulties argue in favor of involving multiple independent investigators in the analysis of out-of-hospital utilization and expenditure effects of PPS.

Evaluating the Effects of PPS on Out-of-Pocket Expenditures by Medicare Beneficiaries

Because PPS is likely to lead to shifts in settings of care, some Medicare beneficiaries may be particularly at risk for large increases in out-of-pocket expenditures. Since Medicare coverage for nursing homes is limited⁷ and nursing home care is expensive—the average per-day cost of Medicare-certified homes in 1980 was approximately \$72 (324)—patients discharged to nursing homes earlier than they would be under PPS would bear a heavy additional financial burden.

Unfortunately, estimating the total out-of-pocket expenditures of Medicare beneficiaries themselves is not possible using Medicare claims records, Medicare claims data can identify beneficiaries who are at risk for high expenditure burdens, such as those who have been discharged from hospitals to nursing homes, but the complete utilization or expenditure history is not available through claims data. Once Medicare benefits run out, the Medicare program may not receive bills from either patients or providers.

A comprehensive estimate of out-of-pocket expenditures by Medicare patients for all services would require a population-based survey of a sample of Medicare beneficiaries sufficiently large to identify pre- and post-PPS differences in expenditure patterns. But such a survey is unlikely to be either economically or technically feasible. Out-of-pocket expenditure burdens would be concentrated among a small population of Medicare beneficiaries who are high users of medical care. Detection of rare events requires large sample sizes. Also, surveys of health care utilization and expenditure are often subject to systematic underreporting (187) unless meticulous procedures to verify responses are followed.

A special survey of a sample of patients discharged to nursing homes could be used to collect information on the duration of nursing home stays both before and after PPS. In addition, data

⁷Medicare covers 100 percent of the cost of care in skilled nursing facilities (SNFS) for a period of 20 days, and 80 percent of care between the 21st day and the 100th day. Medicare coverage ends after the 100th day.

from the National Nursing Home Survey conducted in 1977 and 1984 (and scheduled for 1990) may provide data on patterns of utilization of nursing homes by Medicare beneficiaries (see app. C for a description of the survey).

Evaluating How Well DRG Payment Rates Cover the Cost of Serving Medicare Patients

Because there is concern that PPS may lead to unintended subsidies across payers, it is important to know how closely the inpatient revenues hospitals receive from Medicare match the costs of serving those patients. Although the first DRG prices were based on the estimated costs of serving Medicare patients, it is possible and, indeed, likely that costs and prices will diverge over time.

To some extent, such divergence is desirable, because it allows hospitals to reap the benefits of any economies they are able to make. However, too great a divergence either way is risky. If costs are substantially higher than revenues, some hospitals may be financially stressed, and other payers may subsidize Medicare. If costs are much lower than revenues, Medicare will be paying for care delivered to other patients, investments in expanded capacity or technology, or high profits to the owners of for-profit institutions. Consequently, the relationship between Medicare hospital expenditures and costs should be assessed periodically.

In theory, it is straightforward to compare Medicare payments made for hospital care with the costs of treating Medicare patients. In practice, limitations of cost-finding methods and data availability create impediments to precise estimation of the true costs of treating different kinds of patients. Rough estimates are probably the best obtainable.

The hospital can be thought of as a multiproduct firm that uses certain resources to produce a variety of different products. The resources are personnel, materials, equipment, and buildings; the products are treatments delivered to inpatients. (Each hospital stay is, in essence, a unique blend of hospital products,) Allocating the costs of the resources used among the specific products necessarily involves cost allocation techniques which can vary substantially. For example, the

cost of nursing services can be allocated among patients according to the length of stay, the total patient charge, or a measure of relative need for nursing services (289). Allocations using the first two measures are relatively easy to execute; the third measure may require an assessment of the severity of illness of each patient. Moreover, the resulting cost allocations are likely to look quite different from one another (289). Properly executed, an estimate of need for nursing services may most fully account for cost differences among patients, but the administrative costs of employing this allocation procedure are high. Approximate measures often must suffice.

The most readily accessible source of hospital cost data is the Medicare cost report prepared and submitted annually by hospitals to Medicare intermediaries (see app. E for a description of the Medicare cost reporting system). The cost reports allow a substantial amount of flexibility to hospitals in cost allocation methods. Under cost-based reimbursement, hospitals had an incentive to manipulate cost allocations to maximize revenue from Medicare (75).⁸ Moreover, the fully allocated costs of each department were apportioned between Medicare and other patients on the basis of the ratio of Medicare charges to those of other patients, which may not reflect the true cost differentials between Medicare and other patients.

More direct cost-finding techniques are available, but these are expensive and typically hospital-specific. Several hospitals have developed sophisticated cost-finding systems to estimate the true costs of serving certain kinds of patients (196, 397). Results of hospital-specific costing exercises could be useful in studying the problems inherent in using the Medicare cost report as a basis for estimating the costs of treating Medicare inpatients.

⁸In some States, hospitals must submit cost reports to a State rate-setting or regulatory authority. The reporting requirements may differ somewhat from the Medicare cost reports, but the principles of cost allocation are fundamentally similar. In a recently published study of cross-payer subsidies in hospitals in New York State, a sophisticated cost-allocation technique was applied to data from the State's cost reporting system (191). The study found that under cost-based reimbursement, Medicare paid 100 percent of the estimated costs of treating its patients,

Even with accurate allocation of costs across different kinds of patients, the question arises as to what costs Medicare should pay for. If Medicare is a prudent buyer, then it should pay only for the costs of providing efficient care. Average per-stay costs may be artificially high if hospitals are systematically inefficient in caring for patients. If DRG prices are based on average costs calculated on the basis of substantial inefficiency in the system as a whole, including that based on excess capacity, then PPS will essentially be financing this inefficiency and may not adequately encourage more efficient operation of the hospital industry. (Were the industry not largely composed of voluntary hospitals, concern over continued inefficiency would be replaced with concern over excess profits or excess capacity in the system. As largely not-for-profit entities, however, hospitals may use their revenues in other ways, including the financing of inefficient operations.)

Should Medicare pay its fair share of the cost of inefficiency (including excess capacity) in the system, or should it let third-party payers and self-pay patients with less market power bear the full cost of inefficiency in the hospital industry? This is a basic question of equity which cannot be answered here, but which has ramifications for the kind of cost estimation methods that should be used to compare the costs of treating Medicare patients with those of non-Medicare patients. Either way, the data exist on the Medicare cost reports to estimate, albeit imperfectly, the cost of treating Medicare patients compared to the revenues actually received by hospitals.

Evaluating Variations in Hospital Profits Under PPS

A prospective payment system that rewards efficiency and penalizes inefficiency in hospitals also redistributes profits among hospitals. The important question in evaluating the fairness of such a payment system is whether the patterns of profit redistribution are related to causes outside the hospital's control. The contention by some observers that DRGs do not adequately measure severity of illness bears on this question (see, for example, ref. 140). However, even if DRGs were able to measure severity of illness perfectly, unjustified systematic losses and gains could still occur

in some patient categories because of unmeasured differences in the costs of inputs (e.g., regional differences in the cost of nonlabor inputs) (174).

Of course, interhospital differences in profits due to systematic variations in patient resource needs or input costs must be distinguished from those due to differences in the relative efficiency of hospitals. The best way to distinguish between systematic and efficiency-based cost differentials is to examine the distribution of costs of serving Medicare patients in specific DRGs across various classes of hospitals. Classes of hospitals could be defined by combinations of the following characteristics:

- volume of low-income Medicare patients;
- teaching status;
- inner city/suburban/rural location;
- Standard Metropolitan Statistical Area size;
- proprietary /public/voluntary ownership; and
- region of the country (nine census regions).

If the costs of serving patients in specific DRGs are found to be relatively high for hospitals in a particular class, especially when other characteristics such as the size of the hospitals or the complexity of their facilities are accounted for, there is suggestive evidence that patients vary systematically across hospitals in their resource needs. However, differences in costs might also result from historical patterns of availability of funding for different kinds of hospitals, with some hospitals having had to "make do" with fewer resources.

At present, hospital revenues under PPS vary with teaching status, urban or rural location, area, and regional location of the hospital. Thus, the first step in determining whether hospitals (and the Medicare patients they serve) are being treated

¹Large hospitals have certain inherent advantages in coping with PPS. They can take advantage of whatever economies of scale exist in the production of hospital services; they may have more sophisticated management; and they can spread financial risks over a larger number of patients. However, recent analysis also suggests that the complexity of a hospital's services may increase average costs because of the substantial excess capacity that exists with expensive, unused technology (143). An analysis of cost differences by size and related variables creates a context for understanding the impacts of other factors.

fairly under PPS is to compare hospital-specific costs with their relevant DRG payment rates.

Several organizations have examined the potential redistribution of surplus that would be brought about by PPS if the distribution among hospitals of patient characteristics and the costs of treating those patients were to stay the same as they were prior to PPS (295,369,388). These profit simulations have compared average revenues under PPS with the costs of treating Medicare patients (as estimated from Medicare cost reports and claims data) by hospital size, urban or rural location, teaching status, ownership, and region of the country.

The results of these simulations (shown in table 3-1 in ch. 3) are limited as predictors of ultimate redistributions of surplus and losses due to PPS. First, they assume that PPS brings about no change in patient characteristics or in hospital operations, when in fact PPS is specifically intended to induce such changes. If certain kinds of hospitals systematically have greater flexibility in patient selection or were operating less efficiently than others at the start of PPS, the actual surplus redistribution could look quite different from the predicted one.

Second, and more important, the comparison of surpluses across types of hospitals fails to differentiate between differences due to patient characteristics or input costs and those due to the relative efficiency of different kinds of hospitals. This is, of course, the central dilemma in interpreting such differences.

To truly differentiate efficiency problems from those due to uncontrollable factors, much finer analyses of patient characteristics are required. If, for example, public hospitals come to be financial losers under PPS, detailed comparisons of patient severity in these institutions compared to others might be warranted. A number of patient classification systems other than DRGs exist that can provide information on within-DRG differences in patient characteristics (see app. H for a description of existing patient classification systems). Although all such systems may not be practical for direct use in prospective payment they can provide valuable information on systematic differences in patient distributions across

types of hospitals. Such studies would be expensive, as reclassification of patients according to a new system generally requires primary data collection from the medical record, but the expense may well be justified if this is the only way to settle this important question.

Data Sources

Medicare's Part A and Part B data systems provide a rich base for monitoring Medicare expenditures for all kinds of health services and for estimating hospital costs (Part A data systems are described in app. E). Because these data systems were developed and designed for use in the administration of the Medicare program, however, their content, quality, and timeliness is governed by the administrative requirements of the past. These data systems are largely limited to providing information on the Medicare program and Medicare beneficiaries. However, they also contain data on health care providers who serve Medicare patients, and these data can be used to a limited degree to assess the general issue of cost-shifting among payers.

Patient bills are the basis for data on utilization and expenditures for hospital and other covered services for Medicare beneficiaries. Medicare hospital expenditures per enrollee and per DRG can be obtained from the patient billing files. Medicare expenditures for other kinds of services (e.g., physicians, SNFs) are also easily monitored by these data systems, but an integrated beneficiary-based claims data file, which would link Part A and Part B claims for purposes of analysis, does not exist at present.

Medicare claims data cannot pick up out-of-plan expenditures made by or on behalf of Medicare beneficiaries. Thus, for example, out-of-pocket or Medicaid expenditures for nursing home care rendered to Medicare beneficiaries cannot be tracked through the Medicare databases.¹⁰ Direct surveys of Medicare patients who have been hospitalized may be the only practical way to obtain this information.

¹⁰Unfortunately, the Medicaid data available at the national level do not provide for easy tracking of these expenditures either.

Data on hospital costs are available in the Medicare cost reports submitted annually by hospitals to Medicare intermediaries. Because virtually all non-Federal short-term hospitals participate in Medicare, data on hospital costs are available for the universe of such hospitals. (Cost data on other kinds of providers, such as SNFs or home health agencies, are not nearly so universal.)

It is possible to apportion hospital costs between the Medicare and non-Medicare populations using the Medicare cost report data, but finer breakdowns of cost among different kinds of non-Medicare payers (e.g., Blue Cross vs. commercial insurance firms) are not possible. The cost reports also contain data on costs and charges by department for Medicare and non-Medicare patients.

When combined with hospital billing data, the Medicare cost reports provide a reasonable but imperfect source of **data on hospital specific costs by DRG. Indeed, the Medicare cost reports, along with Medicare billing data, were used** to generate the first set of DRG prices. The cost of each department was apportioned between Medicare and non-Medicare patients according to the charges each patient incurred in the department. The weight of each DRG was computed as the average cost of cases in the DRG divided by the average cost across all hospitals. As DRG prices in-

crease according to administrative or legislated formulas, they can be compared to DRG costs recalculated in this way, thus providing generally valid information on the distribution of profits and losses by DRG and across hospitals.

The Medicare cost reports present two problems. One problem is that these reports are available in automated form only after a substantial delay. A second problem is that the content of data required in the reports has changed over time as the details of Medicare payment have changed. New report formats can be (and are routinely) developed by HCFA. One concern is that HCFA could reduce data reporting requirements without adequate consideration for their usefulness in estimating the costs of serving Medicare and other kinds of patients,

The importance of knowing whether and how DRG-specific profits and losses vary across types of hospitals argues for the continued availability of Medicare cost report data at least at the level of detail that was available for the construction of original DRG weights. At present, HCFA's data processing systems do not allow for timely access to the cost-report data to support the monitoring function. The long delay in the availability of Medicare cost report data in automated form at HCFA limits the ability to monitor this important issue.

CONCLUSIONS

The five critical questions on the expenditure and cost impacts of PPS present conceptual, methodological, and data problems. In each area, the methods available for analysis are imperfect and data sources are limited. Judgment will be needed both in the selection of methods for analysis and in the interpretation of findings.

Interpreting changes in Medicare hospital expenditures, on its surface the most straightforward task, will require judgment in separating out the causes of changes in patterns of admissions and coding if the effects of PPS are to be distinguished from effects that are beyond the control of the hospital.

The full effect of PPS on Medicare's nonhospital expenditures and on Medicare beneficiaries' out-of-pocket expenditures cannot be known with accuracy. There is simply too much going on throughout the health care system to be able to attribute changes in some categories of expenditures (especially physician services) to PPS. Yet the use of some settings—notably home health care and SNFs—is bound to be altered dramatically as a result of the strength of the PPS incentives. Attention should be paid to these components of Medicare and out-of-pocket expenditures. Estimating the magnitude of these changes will require data that will allow tracing the complete history of medical use by beneficiaries. Medicare

claims data from different kinds of providers need to be integrated by beneficiary for use in such analyses.

Measuring hospital surplus under Medicare, both to monitor the degree to which Medicare pays the full costs of treating its beneficiaries and to identify financial winners and losers among hospitals, will be difficult. A primary reason is that cost-finding techniques are limited by the data available on the Medicare cost reports. Also, conceptual issues such as whether to include the costs of excess capacity in such calculations will complicate the interpretation of the findings. Nevertheless, the overwhelming importance of these two questions argues for careful attention to their study and to further development and maintenance of data files that can offer insight into them.

Thorough analysis of the reasons for differences among hospitals in the costs of treating Medicare patients will require detailed comparisons of patient characteristics in different kinds of hospitals.

Patient classification systems other than DRGs, that account for a higher proportion of observed variation in the resources used, can be used for such detailed analyses of cost differences. Although such studies are costly, they represent the best way to address this important distributional issue.

The availability of data on hospital costs and Medicare claims is critical to adequate assessment of all of the questions raised in this chapter. The main data sources are Medicare's routinely maintained Part A and Part B databases. The Medicare cost reports play a central role in tracking the expenditure and cost impacts of PPS on hospitals and payers. And, provided they are organized into beneficiary-based files, claims data are promising sources of information on shifts of utilization from inpatient hospital to nonhospital settings. Problems in the content, quality, and timeliness of these databases that exist at present will seriously restrict analytic capability.