

**Part One**  
**A Framework for Evaluation**

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Chapter 2

# **Predicted Effects of Medicare's Prospective Payment System**

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# Predicted Effects of Medicare's Prospective Payment System

## HISTORY AND DESCRIPTION OF MEDICARE'S PPS SYSTEM

From its inception in 1965 until late in 1982, Medicare paid hospitals for inpatient services rendered to its beneficiaries on the principle of "reasonable and necessary costs." Hospitals seeking Medicare reimbursement submitted annual cost reports detailing expenses incurred and apportioning them between Medicare and other patients. These cost reports were audited by Medicare's fiscal intermediaries to arrive at the allowable costs for final reimbursement. Allowable costs included operating and capital costs<sup>2</sup> and the net costs of approved educational activities. Prior to 1982, the only limit applied to reimbursement of allowable costs was the cap on reimbursement for inpatient routine operating costs known as "Section 223 limits." First applied in 1974, this cap limited Medicare reimbursement for inpatient routine operating costs to 120 percent of the mean of such costs in a similar group of hospitals. Between 1975 and 1982, the cap was gradually reduced to 108 percent of the mean cost per day in the peer group hospitals. Nonroutine operating costs such as ancillary services and capital costs were exempted from the Section 223 limits.

The death-knell of cost-based reimbursement for hospitals under Medicare was first sounded in 1982, with the passage of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) (Public Law 97-248). In addition to extending the existing Section 223 limits to include the operating costs of ancillary departments and special care units, TEFRA imposed a hospital-specific maximum limit (i. e., a target rate) on the amount of inpatient operating costs per case that would be reimbursed. The hospital's reimbursement for operating costs was capped at the lower of the

target rate or 120 percent' of the mean cost per case for hospitals of the same type, with adjustments up or down by an index of the hospital's case mix.<sup>3</sup> The hospital could keep a small portion of any savings it could generate. TEFRA put no limit on capital costs, the direct costs of medical education, or outpatient services. These remained "passthrough" items.

A more sweeping revision of Medicare's hospital payment system was signed into law in April 1983. The Social Security Amendments of 1983 (Public Law 98-21) mandated the phasing-in over a 3-year period of a prospective payment system (PPS) for inpatient hospital services. In October 1986, at the close of the 3-year transition period from TEFRA to PPS, Medicare payment for inpatient care will be based on a national set of per-case prices for patients in 468 diagnosis-related groups (DRGs).

DRGs area patient classification system developed to reflect differences in predicted resource use among different kinds of hospital patients. Under the DRG-based PPS, Medicare payment for inpatient hospital services is made at a predetermined, specific rate for each DRG. During the 3-year transition period from TEFRA to PPS, a declining portion of the total prospective rate is to be based on a hospital's historical costs in a given base year, and a gradually increasing portion is to be based on a blend of federally determined regional and national DRG rates. Beginning in the fourth year, Medicare payment for inpatient care will be based on a set of national DRG rates. The price for a DRG will be adjusted for the hospital's urban or rural location and area

<sup>1</sup>A fiscal intermediary is an organization under contract to the Health Care Financing Administration (HCFA) to process claims from hospitals and other institutional health care providers.

<sup>2</sup>Capital costs include depreciation, interest expenses, and return on equity. Return on equity is limited to for-profit institutions.

<sup>3</sup>This limit would be reduced over 3 years to 110 percent.

<sup>4</sup>Case mix refers to the relative frequency of admissions of various types of patients, reflecting different needs for hospital resources. The case-mix index used for TEFRA is calculated on the basis of diagnosis related groups (DRGs).

wage rate. Additional payments will also be made for the indirect costs of medical education.

The DRG payment rates apply to all Medicare inpatient discharges from short-term acute care general hospitals in the United States, except for a small number of discharges (set by statute at 5 to 6 percent of the total Medicare hospital payments) with unusually long lengths of stay or high charges. The rates of payment for these "outlier" cases are increased by a predetermined amount thought to reflect the extra costs of care.

Several types of hospitals (psychiatric, long-term, children's, and rehabilitation hospitals) and hospital units (distinct psychiatric and rehabilitation units) are exempted from Medicare's PPS. For the present, these hospitals and units continue to be reimbursed on the basis of reasonable costs. Capital costs and the costs of direct medical education remain passthrough items under PPS at present, although the law creating the new payment system anticipated the eventual inclusion of payment for capital costs.

The initial set of DRG prices was based on the 1981 average inpatient operating cost per case for each DRG in a 20-percent sample of Medicare claims. The law requires that the DRG prices be updated regularly in two ways. First, an overall annual rate of increase, referred to as the "annual update factor," is applied to all DRG prices. Sec-

end, the relative prices of DRGs (i. e., the ratio of the price of one DRG to another) must be assessed and adjusted at least once every 4 years, with the first adjustment scheduled for October 1985. The adjustment must reflect changes in treatment patterns, technology, and other factors that alter the relative use of hospital resources among DRGs. The Prospective Payment Assessment Commission (ProPAC) established by the law is responsible for making recommendations regarding the annual payment increase and relative prices and for evaluating any such adjustments made by the Secretary of the Department of Health and Human Services.

The law requires Medicare to participate in any State-legislated alternative prospective payment program that: 1) covers at least 75 percent of the State's population; 2) makes provisions for competitive health plans; 3) assures the Federal Government that access to hospital care for Medicare and Medicaid beneficiaries will not decline; and 4) assures the Federal Government that hospital costs will not be higher under the State program. Four States—New York, New Jersey, Massachusetts, and Maryland—currently hold waivers from the national Medicare program.<sup>5</sup>

<sup>5</sup>New York's waiver expires in December 1985; the State has elected not to seek a renewal of the waiver.

## THE GOALS OF PPS

The ultimate objective of PPS is to reduce Medicare's outlays for inpatient hospital care while maintaining an acceptable level of quality and access to care for beneficiaries. This goal is to be sought through a fundamental restructuring of the financial incentives facing hospitals. Consequently, PPS is intended as a long-run cost-containment measure, not as a quick solution for hospital cost inflation. PPS was appended to the provisions of TEFRA, whose controls actually govern the rate of increase in hospitals' Medicare revenues during its 3-year life through a "budget neutrality" provision in the PPS law.

PPS rests on the assumption that some part of the health care delivered in hospitals prior to its

introduction was unnecessary or was produced inefficiently. A great deal of evidence has accumulated in the medical literature to support this assumption (57, 74,375,387,389). If the assumption is accurate, cost containment might be achieved without sacrificing patients' health or welfare, provided that the incentives inherent in PPS lead to appropriate changes in hospitals' and physicians' behavior.

The intended consequences of PPS are the elimination of hospital care that offers little or nothing in the way of patient benefits and the organization of hospital operations to provide the necessary care in the least expensive manner. By paying a per-case rate, PPS gives hospitals new

incentives (relative to cost-based reimbursement) to conserve resources during a person's stay in the hospital and to shift care to less costly settings.

The extent to which hospitals actually respond to these incentives depends on their managers' and physicians' goals and constraints. In the case of not-for-profit hospitals—and these represent the vast majority (87 percent at present (13)) of hospitals—the strength of the incentive to operate more efficiently may depend largely on the overall level of financial pressure the hospitals face. Thus, changes in hospital behavior may depend as much on the restrictiveness of the system as on the structure of DRG prices. Moreover,

## PROVIDER INCENTIVES UNDER PPS

As a per-case pricing system, Medicare's PPS creates new financial incentives for hospitals and other providers of health care to behave in ways that are markedly different from those of cost-based payment. Hospital managers and physicians face three basic incentives:

1. to reduce the cost per admission;
2. to increase the number of admissions, particularly those that promise to be profitable; and
3. to develop new sources of profit or surplus by offering services not subject to payment restrictions.

These three basic incentives translate into a number of potential strategies for hospitals and their staffs. Whether a particular strategy is actually followed will probably depend on the size of the potential gains in net revenue, the cost and feasibility of implementing the strategy, the implications for patient care, and the objectives of hospital managements and their physician staffs.

The profitability of any particular admission depends on the price paid for it, which is determined in part by the system used to classify patients. Any patient classification system will assign patients with varying needs for care into a single *category*. How the assignments are made defines which patients are profitable and which are not. PPS relies on DRGs to classify patients

PPS alters hospital incentives in some ways that may conflict with each other, thus leading to unintended and possibly undesirable consequences. Accurate prediction of the effects of PPS on the health care system requires a detailed assessment of the full range of incentives PPS offers as well as an understanding of how these incentives interact with one another and with providers' objectives and constraints in altering their behavior. Because these interactions are complex and there is little prior experience with payment systems like PPS, the magnitude of all and the direction of some effects remain empirical questions.

and therefore establishes a particular pattern of profitability among patients. Any other patient classification system (including revised DRGs) would do the same, but the pattern of profitability would be different. Thus, the specific incentives inherent in PPS result both from its general structure as a per-case system and from the selection of DRGs as the patient classification system.

Many observers have speculated or provided anecdotal evidence that in the search for *per-case cost reductions*, hospitals will pursue the following strategies:

- adopting general management efficiencies (298);
- reducing lengths of stay (80,102,176);
- reducing rates of use of ancillary services (95,161,171,210);
- reducing the total ratios of personnel to patients (165,171,246,379);
- providing services formerly provided during the stay before and after the hospital stay (i.e., unbundling);
- reducing rates of increase in employee wages and fringe benefits;
- purchasing hospital supplies more prudently (7,202); and
- reducing discretionary activities (e. g., continuing education; clinical research) (60,271).

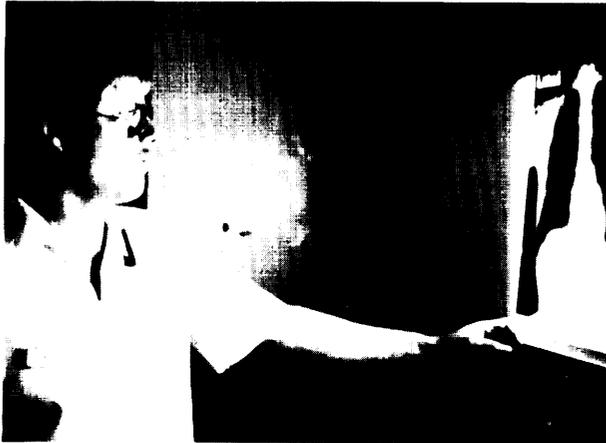


Photo credit Fairfax Hospital Association

One strategy for reducing the cost per hospital admission is to provide fewer ancillary services, including radiology.

Strategies to *selectively increase admissions* would include attempts by hospitals to do the following:

- treat patients as inpatients who might otherwise be treated on an ambulatory basis (97, 218);
- break hospital stays up into multiple admissions (24);
- identify and attract relatively healthy patients within any given DRG by encouraging services associated with those patients (112,280);
- expand medical staffs in certain specialties and reduce them in others (42,221);
- adopt marketing practices aimed at relatively healthy patients (262); and
- encourage physicians to refer patients posing an expected financial burden to other hospitals, particularly, to Veterans Administration (VA) and other public hospitals (110).

Finally, PPS encourages hospitals to expand services to areas that are less financially constrained or more profitable. The hospital is at a particular advantage in marketing pre- and post-hospital services to its patients in the hospital. The existence of a largely captive market for post-hospital home health services, for example, has led many hospitals to set up their own home care agencies (53,190).

Another area that may see substantial expansion as a result of PPS is hospital-based outpatient surgery. Medicare pays hospitals for outpatient surgery on a cost basis. In addition, the 1980 Budget Act (Public Law 96-499) gave physicians financial incentives to perform certain surgical procedures (e.g., cataract surgery, biopsies, endoscopies, dilation and curettage) in outpatient surgical facilities. Hospital managers should be eager to attract surgical procedures from physicians' offices to outpatient units as a way of spreading overhead expenses and may also have a financial incentive to substitute outpatient for inpatient care if the inpatient surgery is unprofitable under PPS. At the same time, physicians have financial incentives to perform certain procedures in outpatient facilities that might otherwise have been performed either in their office or on an inpatient basis. An additional impetus toward outpatient surgery will be given by the utilization and quality control peer review organizations (PROS), which have contracts with the Health Care Financing Administration (HCFA) to review inpatient surgical admissions for their appropriateness. Taken together, these factors imply that outpatient surgery is likely to grow in the future.

Hospitals are likely to approach decisions regarding the introduction of new medical technology under PPS in ways that differ from those used under cost-based payment. Before PPS, the additional costs of new technologies were fully covered; hospitals therefore had no financial incentives to refrain from adopting costly new technologies and had few financial incentives to adopt cost-reducing technologies. Under PPS, new technology that raises the cost of treating a case will have to compete with alternative uses of funds, such as employee wage and benefit increases, additional nursing staff, etc. Costly new technology often has the disadvantage of offering uncertain benefits in the early stages of diffusion (249). The implications are obvious: With limited resources, hospitals will need to assess new technologies more closely and ration resources more carefully.

Nevertheless, the introduction of promising new technologies, particularly those that are cost-reducing, but even some that are cost-raising to the hospital, will be attractive to hospitals as they



Photo credit Fairfax Hospital Association

With limited resources, hospitals will need to assess new technologies, particularly those that are costly, more carefully than prior to the implementation of PPS

compete for physician loyalties and, ultimately, the admissions they represent (23). Thus, for example, despite its high capital and operating cost, magnetic resonance imaging, a new medical technology still largely a research tool, may be highly desirable to hospitals that seek to protect their admissions base from encroachment from other hospitals (279). The importance of this incentive as a constraining force to the previous incentive is unknown. Thus, though PPS does not imply that technological change will approach a standstill, the directions of such change are likely to be altered, and the adoption of technologies that are cost-raising to hospitals is likely to decline by an unknown quantity.

Of course, physicians make the major decisions regarding placement of patients and ordering of services once patients are hospitalized. Although physicians may be disposed to cooperate with hospital managements in their effort to avoid deficits or increase surpluses (276), there may be important limits to this cooperation. First, defensive medicine operates to an unknown extent to discourage physicians from reducing the intensity of services provided (290). Second, hospitalization is an important source of income for physicians. In 1981, 64 percent of physicians' Medicare services were provided in the 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, which comprise about two-thirds of the total admissions for the Medicare program (194). With so much income riding on hospitalized patients, physicians may be reluctant to cooperate with all strategies to reduce costs.

Hospitals also have an incentive to assign patients to DRGs that will provide the greatest possible revenue (280). DRG assignments are made by a computer program called GROUPER that uses the diagnostic and procedural codes and patient age reported on the hospital bill. In the past, accurate diagnostic and procedural coding was not crucial to the payment process, and many errors in coding, particularly, omission of surgeries, appear to have occurred (392). Hospitals now have an incentive not only to improve the accuracy of coding, but also to report codes that will maximize payment levels.

Hospitals under PPS may encourage physicians to consciously consider the payment implications of their medical recordkeeping and the assignment of principal diagnosis upon discharge (232). Although there are bound to be limitations on the extent to which "upcoding" takes place and upcoding is likely to occur early in the implementation of PPS, it remains in the interest of the hos-

<sup>1</sup>Defensive medicine refers to the physician practice of providing services and ordering tests primarily for the purpose of avoiding possible claims of malpractice.



Photo credit Fairfax Hospital Association

Under PPS, hospital managers have an incentive to improve the quality of their medical and financial information systems.

pital always to obtain the most favorable DRG assignment.<sup>7</sup>

An example involving coronary heart disease illustrates the complexity of the coding issue. For patients with chest pain indicative of heart disease, coding the principal diagnosis as atheros-

<sup>7</sup>Evidence of upcoding has already appeared, and the implications for Medicare expenditures are serious. A review of 1984 Medicare hospital claims revealed reported DRG assignments that would produce 5.85 percent greater revenue for hospitals than those expected using 1981 case-mix information. Payment amounts had originally been reduced by 3.38 percent in anticipation of coding improvements. The Department of Health and Human Services (DHHS) attempted to neutralize the expenditure impacts of this by reducing all DRG weights for fiscal year 1985 2.4 percent. Because reported codes could have changed due to actual case-mix changes, DHHS yielded to industry pressure and compromised with 1.05 percent.

clerosis rather than angina pectoris not only increases the DRG weight (from 0.75 to 0.85) but also “makes perfect medical sense” (152) (see table 2-1). Indeed, there is virtually no financial incentive ever to assign a patient to DRG #140 (angina) or DRG #143 (chest pain) (152). Although it raises the per-case cost to some extent, cardiac catheterization of such patients further increases the DRG weight to 1.62, virtually doubling payment for the admission.

Table 2-1 shows the reported percent of Medicare hospital discharges in these DRGs in calendar year 1981 and fiscal year 1985.<sup>8</sup> Cardiac catheterization (DRGs #124 and #125) jumped from 0.2 percent of discharges in 1981 to 1.3 percent in 1985, reflecting in part higher rates of catheterization and in part more accurate reporting of the procedure. Undoubtedly, a large (but unknown) proportion of patients assigned in 1981 to DRGs #132, #133 (atherosclerosis), and #140 (angina) were catheterized and were therefore wrongly assigned. The data in table 2-1 also show a dramatic increase in the proportion of discharges in DRG #140 (angina), despite the fact that the financial incentives of PPS argue strongly for reclassification of such cases to DRG #132 (atherosclerosis). The reasons for the disparity between the incentives and actual behavior are not well understood.

<sup>8</sup>This period includes October 1, 1984 to July 26, 1985.

**Table 2-1.—DRG Weights and Ranks for Selected Coronary Heart Disease, Calendar Year 1981 and Fiscal Year 1985**

DRG No.	Name	Weight <sup>a</sup>	Calendar year 1981		Fiscal year 1985 <sup>b</sup>	
			Percent of discharges	Rank	Percent of bills	Rank
124	Cardiac catheterization, complex diagnosis . . . . .	2.1969	0.02	338	0.5	50
125	Cardiac catheterization without complex diagnosis . . . . .	1.6284	0.2	127	0.8	28
132	Atherosclerosis (age >69 and/or C.c.) . . . . .	0.9087	3.6	3	0.6	41
133	Atherosclerosis (age <70 w/o c.c.) . . . . .	0.8510	0.8	27	0.1	242
140	Angina pectoris . . . . .	0.7470	1.9	11	3.3	3
143	Chest pain . . . . .	0.6743	0.7	31	0.8	31

<sup>a</sup>Weight assigned in first year of pPS operation  
<sup>b</sup>Bills re-eval'd b/Medicare between Oct 1, 1984 and July 26, 1985  
<sup>c</sup>c - comorb(d)ities and complications

SOURCE U S Department of Health and Human Services, Bureau of Data Management and Systems, Health Care Financing Administration, unpublished data, 1985

## DIMENSIONS OF PPS IMPACT

The incentives under PPS set in motion provider strategies that have consequences for the costs and quality of health care and their distribution throughout society. Some behavior changes may improve the performance of the health care system; some may reduce it. Other changes may have little ultimate impact. Some of the consequences should occur early on, others only after a substantial period of time has elapsed. Some may be one-time adjustments; others may continue. Some may be highly visible and easily measured; others may be discernible only indirectly by observing changes in behavior of patients or providers to which they are closely linked.

The impacts of PPS will not be distributed uniformly across society. Some groups or individuals will gain more or lose less than others. The distribution of PPS impacts among affected groups is as important as the aggregate impacts. Thus, in discussing the consequences of PPS, it is necessary to identify specific groups for whom such impacts should be separately tracked.

The most important effects of PPS are on the cost of providing health care and on the *health benefits* such care bestows.<sup>9</sup>

- **Health care costs:** The impacts of PPS on the costs of both the Medicare program and health care in general is obviously of great importance. In discussing these impacts, a distinction can be made between costs and expenditures. The "cost" of a health service is the value of the productive resources (e.g., personnel, materials) used in the production of the service. The "expenditure" is the amount actually paid in exchange for the

service. At the national level, health care costs and expenditures can be equated. However, the cost of serving a set of patients may be different from the expenditures made by them or on their behalf if cross-subsidization is occurring or if providers are making high profits.<sup>10</sup> Thus, it is important to measure both the expenditures borne by specific kinds of consumers (or the third-party payers who insure them) and the costs of actually treating them.

- **Health benefits:** Patients receive two basic kinds of benefits from health care—improvements in health status and prognostic information. When health status is defined broadly to encompass the quality as well as the length of people's lives, then palliative care can be as important as curative or restorative services. Also, even if health care were completely unable to interrupt or reverse the natural history of any disease, accurate diagnosis would still be valuable for its ability to inform or reassure patients and their families. The benefits deriving from health care involve many dimensions, including rates of mortality, morbidity, disability, and satisfaction. Tracking changes in these benefits is difficult and inevitably requires the selection of incomplete and imperfect proxy measures.

Health program evaluations, rather than focusing directly on health benefits, usually measure a program's effects on subsidiary concepts such as access to care, quality of care, utilization of services, and organization of care (44, 127). These proxy measures provide partial and overlapping views of the benefits and costs of health care and are discussed in the chapters that follow.

"Access" refers to the "potential and actual entry of a given population group to the health care delivery system" (4). It raises the question of how much health care each person is able to receive

<sup>9</sup>PPS also has the potential to affect the livelihoods of a large number of people through its influence on patterns of employment in health care and related industries. To the extent that such employment changes affect health costs and benefits, they are captured in the benefit cost framework here. But employment shifts raise issues of public policy in their own right. For example, if PPS leads to major layoffs of unskilled hospital personnel, what alternative employment opportunities will be available? Or, what are the implications of PPS for Federal subsidy of medical and allied health sciences education? These questions are embedded in larger questions (If labor force management and, while important, are beyond the scope of this study.

<sup>10</sup>In a perfectly competitive health care system, profits would be reduced through competition to the minimum required to keep providers in the market. Any profits above this minimum return are referred to as "economic rents," and represent a net transfer of wealth from the consumer to the provider as a result of the provider's market power.

and the terms on which he or she receives it. Thus, access is closely related to, but not identical with, utilization, which refers to the quantity and mix of services actually provided and to patient's out-of-pocket expenditures. Access is also affected by the content of the care actually received, for even if they use the same number and mix of services, people can have very different levels of access if the quality of those services differs widely,

"Quality of care" is a term that is widely used but rarely defined. One often cited definition of quality care is the kind of care which is expected to maximize an inclusive measure of patient welfare, after one has taken account of the balance of expected gains and losses that attend the process of care in all its parts (86). Deviations from this ideal represent degradations in quality. Such deviations can occur if the patterns of utilization of services or their content are suboptimal. Quality is also affected by changes in access to care. Indeed, some discussions of quality of care treat access as a constituent element of quality (223).

Cost, access, and quality of care are all affected by the organization of services—the configuration of setting, location, and management by which care is provided—through its influence on the utilization and content of care. For example, many hospitals with low occupancy rates may convert acute care beds into long-term care beds. The increased supply of long-term care beds could

markedly improve Medicare patients' access to long-term care at the same time that it encourages hospitals to become more selective in their acute care admission strategies.

In the long run, PPS may affect health benefits and costs through its influence on the process of technological change—the periodic introduction of new medical technologies and abandonment of some existing ones. If PPS alters the rate and direction of introduction of new medical technologies and the rate and depth of their adoption by providers and consumers, then the stream of health benefits and costs over time will inevitably be altered. Whether the ultimate effects on health benefits and costs resulting from any alteration in the patterns of technological change are negative or positive and what the magnitude of such effects is remain questions for empirical investigation.

Technological change itself rests partly on an underpinning of research and development (R&D) conducted largely by academic health researchers and the health products industry, which is also likely to be affected by PPS (151). An important component of R&D that some have claimed will be particularly sensitive to PPS is clinical research—investigations conducted on patients. If clinical research is altered, knowledge about the relative effectiveness of alternative medical technologies will be affected.

## THE DISTRIBUTION OF PPS IMPACTS

As mentioned earlier, Medicare's PPS will not affect everyone uniformly. Changes in benefits and costs will vary among classes of patients, payers, regions of the country, and providers of care.

Medicare patients with particularly complicated health problems, for example, may receive lower quality care than will those with relatively simple medical problems. Medicare patients who might have received nutritional support during the hospital stay under cost-based reimbursement may now be required to obtain these services outside the hospital as a Part B benefit which requires 20-percent patient copayment. Medicare patients may also find their access to some services reduced

relative to non-Medicare patients. For example, admission to hospitals' special care units could conceivably become more selective for patients under PPS than for patients covered by cost- or charge-based reimbursement. On the other hand, Medicare patients could reduce the access of Medicaid patients to nursing home beds, because Medicare is more generous with nursing home reimbursement than are most Medicaid plans.

Shifts in the burden of health expenditures among Federal programs, third-party payers, and consumers are also likely. Even within the Medicare program, PPS may lead to expenditure shifts from Part A (Hospital Insurance) to Part B (Sup-

elementary Medical Insurance). It is difficult to predict how PPS will affect either Part A or Part B expenditures in the aggregate. The objective of the new payment system, of course, is to reduce the rate of increase in Medicare's expenditures for inpatient hospital services. Since the law sets a cap on the annual increase in per-case prices, Medicare's aggregate PPS expenditures can increase more or less quickly than that rate only if the number or reported mix of hospital cases change.<sup>11</sup> Thus, interpretation of PPS impacts on Medicare's hospital expenditures will require a detailed examination of inpatient utilization rates and case-mix changes.

For other Part A services—for example, services in skilled nursing facilities and home health services—some predictions of directions of effect are possible. Medicare expenditures for home health services and skilled nursing care, for example, are likely to increase as a result of the incentives inherent in PPS. Yet the magnitude of such effects is highly uncertain, because it is simply unknown how providers and patients will react to PPS.

The same uncertainty exists regarding the impact of PPS on Part B expenditures. PPS may move some services, such as cataract surgery, to outpatient settings, with consequent increases in Part B expenditures. Conversely, the incentive to increase hospital admissions under PPS may move certain procedures from an outpatient to an inpatient setting. Shorter lengths of hospital stay may reduce the number of physician visits to hospitalized patients, resulting in lower payments to physicians.

How PPS will affect expenditures for other Federal health care programs, such as VA and Medicaid, is also uncertain. Reductions in Medicare Part A payments may increase the demand for VA medical care (110), but how Congress responds in providing appropriations to the VA system to meet that demand will determine the ac-

tual expenditure effects. The Medicaid program, too, has limited eligibility; only if PPS increases the demand for Medicaid services by joint Medicaid/Medicare beneficiaries will these expenditures increase. This would happen, if, for instance, PPS forces poor patients out of the hospital into nursing homes where Medicaid benefits are required.

Expenditures for patients who are privately insured could either increase or decrease as a result of PPS. To the extent that PPS forces hospitals and their physicians to become generally more efficient in their use of hospital resources, privately insured patients will have reduced total outlays (premiums plus copayments). For example, reductions in average length of hospital stay in 1983 were observed in all age groups, not just in the Medicare population. On the other hand, PPS can lead to cost-shifting, in which hospitals increase their prices to cost- or charge-paying consumers to make up for shortfalls from serving Medicare patients. Whether hospitals have the market power to raise prices at will is debatable (126) and probably varies from place to place depending on the degree of competition for patients. About 33 million people in the United States were uninsured in 1983 (282), and many privately insured people have incomplete coverage for hospitalization, so some sensitivity to prices probably exists, especially in the areas with substantial excess hospital capacity.

The introduction of PPS promises to redistribute surpluses<sup>12</sup> among hospitals, with some suffering losses and others gaining. To the extent that this redistribution is related to the hospitals' relative efficiency in patient care, it is desirable and may be temporary in many hospitals. To the extent that inefficient hospitals cannot adjust to PPS, such hospitals may decline or even close. Hospital closure due to inefficiency would be a desirable consequence of PPS.

However, hospitals with certain attributes may find themselves at a financial disadvantage under PPS—for example, if they are classified as ru-

<sup>11</sup>In its first annual report, the Prospective Payment Assessment Commission recommended that the average DRG price be adjusted downward to account for any changes in reported case mix due to upcoding (as opposed to real case-mix changes), but the Commission neither estimated the size of this adjustment nor suggested a method by which DHHS should arrive at such an estimate (237).

<sup>12</sup>Surplus (or profit) refers here to the difference between a hospital's revenue and the cost of operation. Although the concept of surplus is clear, its measurement depends on the methods used to account for costs.

ral hospitals when they must pay wages and other costs that are essentially urban (232); if they systematically receive the most seriously ill patients within DRGs; if they systematically treat patients whose home environments or economic circumstances make early discharge infeasible; or if they substantially engage in clinical research. Such hospitals would be likely to have costs that exceed DRG payments. Hospitals without these attributes would be likely to have below-average costs.

The redistribution of financial resources among hospitals due to these factors would be undesirable

for two reasons. First, it would affect the distribution of health care resources, and hence, of health benefits among patients; and second, it would simply be unfair to the owners, managers, and employees of the hospitals who lose under the system. Assessments of the extent of such systematic redistribution of profits and surpluses among hospitals is therefore of critical importance.

## CONCLUSIONS

The response by health care providers to the new incentives under Medicare's PPS will inevitably affect the costs and benefits of health care. While it is reasonably straightforward to catalog many of the incentives inherent in PPS relative to Medicare's previous cost-based hospital reimbursement system and to array possible provider behaviors emanating from the new incentives, it is difficult to predict which strategies will be followed, the degree to which they will be followed, and the effects they will have on the benefits and costs of health care.

Two conclusions can be drawn. First, the effects of PPS are likely to occur over time, with some appearing quite early and others taking much longer to work themselves out. A mature assessment of the impacts of PPS will require continued observation over the years. Effects due to changes in patterns of medical practice, organization of care, or the rate of technological change may take years to develop.

Second, the effects of PPS are likely to fall unevenly across patients, providers, and payers. Patients with certain conditions, life situations, or residing in certain areas may find the access to and quality of their care lower than others. Some hospitals may be financially penalized because they systematically treat a higher than average

number of these patients. And some patients or their third-party payers may find themselves paying a greater proportion of the cost of their care than others as a result of PPS. Identification of such inequities in the impacts of PPS is absolutely critical to evaluation.

Since PPS represents a dramatic reversal of incentives away from the encouragement of more care in the hospital at higher cost toward less care at lower cost per hospitalization, it would appear prudent to focus evaluation on changes in the amount and distribution of care given and the settings in which it is rendered. Yet information on the effects of PPS on the quantity and location of care is inadequate if it is not related to health benefits and costs. To know that the organization of health care delivery and patterns of utilization of services and technologies have changed is simply not enough. These changes must be related to their impacts on benefits and costs. The assessment of impacts of PPS on expenditures and costs, quality of care, access to care, technological change, and clinical research, is an admittedly imperfect, but necessary, substitute for the direct measurement of health benefits and costs. Part Two of this report discusses the evaluation of each of these critical impact areas.