

# The Impact of the Medicare Prospective Payment System And Recommendations for Change

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In 1983, the U.S. Congress passed the Social Security Reform Act establishing a prospective payment system (PPS) for hospitals under the Medicare program.<sup>1</sup> PPS represents a radically different approach to paying for care than the retrospective cost-based reimbursement system it replaced. The program pays hospitals a prospectively determined amount for each Medicare patient treated depending on the patient's diagnosis. Although not the only hospital prospective payment system in operation,<sup>2</sup> the Medicare prospective payment system has had the greatest impact on our health care delivery system since it covers approximately 33.2 million people<sup>3</sup> and accounts for nearly 27 percent of all expenditures on hospital care in the United States.<sup>4</sup> The Medicare PPS has influenced where program beneficiaries receive health care services, how long they stay in hospitals, and the kinds of care they receive.

There has been considerable concern that PPS has had a negative effect on the quality of care provided to Medicare beneficiaries.<sup>5</sup> Although there are some case studies suggesting otherwise, the preponderance of evidence indicates that the implementation of PPS has been accompanied neither by a decrease in the quality of care provided, nor by discrimination against more seriously ill patients.<sup>6</sup> However, the overall financial condition of hospitals has changed

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1. Social Security Amendments of 1983, Pub. L. No. 98-21, § 601, 97 Stat. 65, 149-72 (1983) (codified as amended at 42 U.S.C. § 1395ww (1982 & Supp. V 1987)).

2. For a history of hospital cost containment programs in effect as of 1980, see HEALTH CARE FINANCING ADMINISTRATION, ABSTRACTS OF STATE LEGISLATED HOSPITAL COST CONTAINMENT PROGRAMS, (1982) (prepared by A. Esposito).

3. STAFF OF HOUSE COMM. ON WAYS AND MEANS, 101 CONG., 2D SESS., BACKGROUND MATERIAL AND DATA ON PROGRAMS WITHIN THE JURISDICTION OF THE COMM. ON WAYS AND MEANS, 128 (Comm. print 1989).

4. Letsch, Lcvit & Waldo, *National Health Expenditures 1987*, 10(2) HEALTH CARE FIN. REV. 109 (1988).

5. See *infra* note 80 and accompanying text.

6. See *infra* notes 74-85 and accompanying text.

significantly since the first years of PPS and quality of care may begin to deteriorate in the future. This article argues that quality of care will be threatened if hospitals and policymakers do not adequately address current problems—in particular, cost shortfalls.

This Article will describe PPS, discuss some of its initial effects, and make recommendations for change. Part I discusses the background to the implementation of PPS paying particular attention to the increase in Medicare expenditures on hospital services that motivated the reform. Part II describes the basic structure of the Medicare prospective payment system and contrasts it with the retrospective payment system that preceded it. Part III describes the effects PPS has had on our health care delivery system. It begins with a discussion of the effects that were anticipated when the program was first implemented. It then presents data on some of the more important changes that have in fact occurred under PPS. The section focuses on those effects that have had a direct impact on beneficiaries: hospital admission rates; lengths of stay; use of other providers; and quality of care. Part IV documents the deterioration in hospitals' financial conditions since the implementation of PPS and discusses the fundamental policy choices underlying this decline. It then makes some recommendations for modifying the prospective payment system to ensure that quality of care is not sacrificed.

## I. History and Context of the 1983 Medicare Reform

Congress enacted the Medicare program July 30, 1965<sup>7</sup> and it became effective on July 1, 1966. Medicare consists of two separate but coordinated programs: hospital insurance for inpatient hospital costs excluding physicians' fees (Part A) and supplemental medical insurance that covers physicians' fees and miscellaneous expenses (Part B). Medicare's enabling legislation mandated that hospitals be reimbursed for the "reasonable costs" incurred in providing services to Medicare beneficiaries.<sup>8</sup> In adopting reasonable costs reimbursement, Congress was following the established practice of the private sector. Cost-based reimbursement had been endorsed by the American Hospital Association and it was used by Blue Cross, then the dominant private health insurer.<sup>9</sup>

7. Health Insurance for the Aged, Pub. L. No. 89-97, § 102, 79 Stat. 291 (1965)(codified as amended at 42 U.S.C. 1395 (1982)).

8. For the statutory definition of "reasonable costs", see 42 U.S.C. 1395x(v) (1982).

9. For a detailed discussion of the early history of the Medicare program, see T. MARMOR, *THE POLITICS OF MEDICARE* (1973).

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Between 1965 and 1982, the cost of the Medicare program exploded. Hospital payments, which at that time made up about 60 to 65 percent of all Medicare payments, increased at an annual rate of approximately 16 percent per year.<sup>10</sup> The increase resulted from a number of factors: the growth in the population aged sixty-five and over; an increase in the number of beneficiary groups,<sup>11</sup> an expansion in the number of days of hospital care per 1,000 beneficiaries, and a rise in the reimbursement per day. The most significant inflationary factor was the growth in per diem, reimbursement which was due to an increase in the *cost* of hospital care. Two statistics dramatically illustrate the inflation in hospital costs. Between 1971 and 1981, the cost of a hospital stay rose 13 percent annually, while the cost of a hospital day increased 15 percent annually.<sup>12</sup>

Because of the retrospective cost-based payment system, increased hospital costs were passed through directly to Medicare.<sup>13</sup> Moreover, the federal policy of retrospective cost-based reimbursement in a world of limited patient cost sharing and minimal constraints on the use of capital and other services *contributed* to the explosion in hospital costs. After all, retrospective cost-based reimbursement was like giving hospitals a blank check to cover the cost of care for the elderly. The rapid rate of increase in the costs of the Medicare program and the concern that the Medicare payment system was exacerbating medical inflation changed the priorities of federal policymakers. While in 1965 improving access to the health care system was the primary concern of policymakers, by the mid-1970s cost containment had grown in importance, and by 1980, cost containment had become an overriding concern.

Before examining the legislative response to Medicare inflation, it is worthwhile to look in more detail at the increase in hospital

10. HEALTH CARE FINANCING ADMINISTRATION, HEALTH CARE FINANCING PROGRAM STATISTICS: MEDICARE AND MEDICAID DATA BOOK 17-20 (1988).

11. In 1972, Congress amended the Health Insurance title of the Social Security Act to extend Medicare benefits to the disabled and to patients with end stage renal disease. Social Security Amendments of 1972, Pub. L. No. 92-603, § 201, 86 Stat. 1329, 1370-74 (1972) (codified as amended at 42 U.S.C. 1395c (1982)).

12. See Freeland & Schendler, *National Health Expenditure Growth in the 1980s: An Aging Population, New Technologies and Increasing Competition*, 4(3) HEALTH CARE FINANCING REV. 1 (1983). The cost per stay increased at a lower rate than the cost per day, because the average length of stay was decreasing over this time period.

13. Between 1967 and 1978, Medicare hospital expenditures increased from 2.8 billion to 15.8 billion dollars or at an annual rate of 17.2 percent. Approximately 17 percent of the increase was due to an increase in the number of beneficiaries, about 2 percent was due to increased days of care, and about 81.5 percent was due to increases in the reimbursement per day. See HEALTH CARE FIN. ADMIN., MEDICARE: USE OF SHORT-STAY HOSPITALS BY AGED AND DISABLED INPATIENTS 2 (1983) (prepared by M. Ruther).

costs. Two types of factors account for the increase in costs per hospital stay:<sup>14</sup> (1) increases in the costs of the products and services that hospitals consume—the hospital's "market basket,"<sup>15</sup> and (2) changes in the nature of the hospital products and services given to patients, due to changes in the types of patients treated, an increase in the number of products and services considered customary treatment for a given diagnosis, and changing medical technology. The term used to encompass the second type of factor is "service intensity."<sup>16</sup>

In a review of the factors contributing to higher hospital costs, the Office of Technology Assessment (OTA) stressed the importance of increased service intensity:

The available evidence leads to the conclusion that U.S. health care costs have increased in part because more is being done for patients today than ever before. More and better trained personnel, more procedures, more drugs, and more and higher priced equipment, materials and supplies are being used in the delivery of health care to Medicare patients and to the population as a whole. So far, the trend toward more does not appear to be abating.<sup>17</sup>

The OTA report found that between 1977 and 1982 increasing service intensity added between three and four percentage points

14. Hospital stay is usually considered to be a more meaningful indicator of hospital output than the hospital day. Analysts sometimes refer interchangeably to the cost per hospital stay, the cost per admission, the cost per case, and the cost per discharge. In reality, it is the cost per hospital discharge that is measured. It is determined by dividing the total hospital costs that have been incurred over the relevant time period by the number of hospital discharges over that same time period.

15. This is the so called "market basket" price index. It represents the costs of purchasing the inputs (drugs, staff, etc.) that the hospital uses in a given time period relative to the costs in a base period. It is used to calculate changes in the costs of a hospital's inputs from year to year. See Freeland, Anderson & Schendler, *National Hospital Input Price Index*, 1(1) HEALTH CARE FINANCING REV. 37 (1979).

16. The use of the term "service intensity" is ambiguous because it may or may not include the change in costs due to changes in the types of patients treated (usually referred to as the hospital's case-mix). Over time researchers have developed better measures of the hospital's case-mix. For example, one way to describe the hospital's case-mix is to determine its case-mix index. This is calculated by multiplying the proportion of its cases that fall within a particular diagnosis by the cost associated with that diagnosis and summing across all diagnoses. An increase in the case-mix index indicates that the hospital is treating relatively more costly patients. Unless otherwise indicated, the term "service intensity" includes the change in costs due to changing "case-mix".

17. OFFICE OF TECHNOLOGY ASSESSMENT, MEDICAL TECHNOLOGY AND COSTS OF THE MEDICARE PROGRAM 10 (1984).

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over the increase in the price of the hospital's market basket to hospital costs.<sup>18</sup> This finding implies that, if the rate of increase in hospital costs is to be contained over the long haul, growth in service intensity factor has to be reduced.

While costs were increasing throughout the industry, there was also considerable variation in costs across hospitals.<sup>19</sup> Although some of this variance was due to differences in the prices hospitals had to pay for supplies and labor and to differences in the types of patients various hospitals treated, some of the disparity probably was due to differences in the level of efficiency across hospitals. Policymakers began to explore ways to streamline hospital performance and increase efficiency.<sup>20</sup>

In response to the increase in program costs and to differences in the level of costs across hospitals, a number of changes were made in Medicare reimbursement policy.<sup>21</sup> In 1974, as authorized under Section 223 of the 1972 Amendments to the Social Security Act, Medicare began imposing limits on reimbursement for routine nonmedical costs.<sup>22</sup> If a hospital's routine cost per day exceeded that of comparable hospitals by a certain amount, the additional cost was not reimbursable. Over time, as methods of comparing hospital costs

18. *Id.* at 51.

19. For example, in 1973, the average cost per admission for hospitals with less than 100 beds, 100-249 beds, and over 250 beds was \$521.60, \$779, and \$1,055, respectively. Moreover, the variation in price across small hospitals (less than 250 beds) was considerable. See Lave & Lave, *Hospital Cost Function Analysis: Implications for Cost Controls* in HOSPITAL COST CONTAINMENT: SELECTED NOTES FOR FUTURE POLICY 561 (M. Zubkoff, I. Raskin, & R. Hanft eds. 1978).

20. Extensive research has been done on the factors that account for differences in the level of costs across hospitals. See, e.g., Lave & Lave, *Hospital Cost Functions*, 5 ANN. REV. OF PUB. HEALTH 193 (1984); Cowing, Holtmann & Powers, *Hospital Cost Analysis: A Survey and Evaluation of Recent Studies*, in 4 ADVANCES IN HEALTH ECONOMICS AND HEALTH SERVICES RESEARCH (R. Scheffler & L. Rossiter eds. 1983). Higher costs might be considered excessive if they were due to inefficiencies or differences in the care process that were not associated with differences in health outcome.

21. Many types of changes were made to Medicare in the attempt to control costs. This article only discusses those changes that are most directly related to PPS.

22. Social Security Amendments of 1972, Pub. L. No. 92-603, § 223, 86 Stat. 1329, 1393-94 (1972) (codified as amended at 42 U.S.C. 1395x, cc 1982). Section 223 required the Secretary of Health Education and Welfare to establish limits on the overall direct or indirect costs which would be recognized as "reasonable" under Medicare. The rules used to establish those limits changed over time. For a brief history of the Section 223 regulations, see J. LAVE, THE MEDICARE ADJUSTMENT FOR THE INDIRECT COSTS OF MEDICAL EDUCATION: HISTORICAL DEVELOPMENT AND CURRENT STATUS (Ass'n of Am. Med. Colleges Report 1985).

improved,<sup>23</sup> and as the search for budget savings increased, these limits were progressively tightened. However, these controls were modest and did not control the factors leading to increasing costs.

In 1982, Congress passed the Tax Equity and Fiscal Responsibility Act (TEFRA),<sup>24</sup> which prompted profound change in hospital reimbursement. The most important changes introduced by the bill were: (1) expanding the 1972 limits on total operating costs by setting a cap on the allowable reimbursement per case; (2) limiting the increase in the reimbursement per discharge by penalizing hospitals for failing to meet a "target" rate of increase per annum; and (3) rewarding hospitals for keeping their increase in costs per case below the target rate.<sup>25</sup> Under TEFRA, the hospital's case-mix became a factor in calculating its reimbursement. The law stated that if a hospital's operating cost per case, after adjusting for its case mix, was higher than 120 percent of the costs of comparable hospitals, then the excess costs were not reimbursable.<sup>26</sup> Hospital's own costs continued to serve as the primary basis for reimbursement. However, by setting a target rate of increase and implementing incentive payments, TEFRA represented a movement toward prospective payment. TEFRA also mandated that the Secretary of the Department of Health and Human Services develop a prospective payment system for hospitals.<sup>27</sup>

23. For example, differences in the factor costs originally were adjusted for by the per capita income of the county in which the hospital was located. Eventually, HCFA obtained data on wages paid by hospitals.

24. Pub. L. No. 97-248, 96 Stat. 324 (codified as amended in scattered sections of 42 U.S.C. § 1395 (1982 & Supp. V 1987)).

25. In determining a hospital's reimbursement under TEFRA, the hospital's allowable cost per discharge would be calculated according to a formula. If this amount were less than the statutory limit, and if the last annual increase in the cost per discharge were less than the target limit, then the hospital would be reimbursed its cost per discharge. In addition, the hospital would get a small incentive amount depending upon the difference between its actual increase in costs and the target amount. However, the size of the incentive payment was capped. Unless both of the above conditions were met, hospitals would be reimbursed by Medicare at less than full cost. Pub. L. No. 97-248, §§ 101(a)(1), 110, 96 Stat. 324, 331-36, 339-40 (codified as amended in scattered sections of 42 U.S.C. § 1395 (1982 & Supp. V 1987)).

26. In setting the limit, HSS determined a case-mix index for each hospital by multiplying the proportion of a hospital's case load that fell into each diagnostic group (DRG) by the cost weight for that DRG. The agency then divided this case-mix index into a hospital's cost per case to determine the hospital's adjusted cost per case. The mean adjusted cost per case for each hospital group (as determined by size and location) was then determined. If a hospital's adjusted cost per case was more than 120 per cent of the mean adjusted cost per case for the group, the excess was not reimbursable. There was an additional adjustment to account for the hospital's involvement in graduate medical education. Under the law, the limit was to be reduced over time. *Id.*

27. Pub. L. No. 97-248, § 101(b)(2)(A), 96 Stat. 324, 335 (1982).

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In December 1982, the Secretary submitted a report to Congress that included a design for a hospital prospective payment system.<sup>28</sup> In April 1983, Congress passed the Social Security Reform Act, which established a prospective payment system for hospitals under the Medicare program.<sup>29</sup> The Act became effective in October 1983.

### II. The Medicare Prospective Payment System

Under PPS,<sup>30</sup> all patients are classified into one of 475 groups called diagnosis related groups (DRGs) for the purpose of payment.<sup>31</sup> Each DRG is assigned a cost weight that reflects the cost of treating patients in that DRG relative to the cost of treating the average Medicare patient. At the same time a standardized rate is determined for each hospital. This rate is based upon the national average cost<sup>32</sup> of treating a Medicare patient, adjusted to take into consideration factors that would cause a hospital's costs per Medicare discharge to differ from the national average.<sup>33</sup> To determine the payment a hospital receives for taking care of a patient in a given DRG, its standardized rate is multiplied by the relative cost weight for that DRG. Hospitals receive extra payments for "outlier cases" in which the patient remains hospitalized for a significantly longer

28. DEPARTMENT OF HEALTH AND HUMAN SERVICES, REPORT TO CONGRESS: HOSPITAL PROSPECTIVE PAYMENT SYSTEM FOR MEDICARE (1982) (prepared by R. Schweiker, Secretary of HHS).

29. Social Security Amendments of 1983, Pub. L. No. 98-21, § 601, 97 Stat. 65 (1983) (codified as amended at 42 U.S.C. 1395ww (1982 & Supp. 1987)).

30. PPS was originally waived in four states: Maryland, New Jersey and Massachusetts. However, New York and Massachusetts have dropped their waivers and hospitals in these states are now paid under PPS rules.

31. The DRGs are a patient classification system developed by Robert Fetter and his colleagues at Yale University. Patients are classified on the basis of: (1) their principal diagnosis (that diagnosis which after discharge was found to be responsible for the admission); (2) whether they had surgery; (3) age; and (4) whether the patient had complications or co-morbid conditions. Originally, there were 465 groups. The number of DRGs has increased slightly over time in response to changing medical technology and improved information. Changes in the DRG classification system under Medicare are regulated by the Health Care Financing Administration (HCFA). See Fetter, Thompson & Averill, *The New ICD-9-CM Diagnosis Related Groups (DRG) Classification System* (1982) (Health Systems Mgt. Group, Yale University).

32. When PPS was first implemented the hospital's standardized rate was based 75 percent on its own costs and 25 percent on regional and national costs. The statute provided that over time, the hospital-specific and regional-specific component of the rate would be phased out. 42 U.S.C. 1395ww(d)(1)(C) (1982 & Supp. V 1987).

33. Current adjustment factors include the wage rate in the hospital's geographic area, the number of physician residents per bed (a proxy for the costs of graduate medical education), and the number of Medicaid patients. Separate national averages are calculated for urban and rural hospitals. 42 U.S.C. § 1395ww(d)(2) (1982 & Supp. V. 1987).

period of time than usual or in which the costs are significantly higher than the average.<sup>34</sup> The PPS payments are supposed to cover the hospitals' operating costs. Medicare's contributions to the cost of graduate medical education as well as to capital costs are calculated separately and are based in part on hospital's incurred costs.<sup>35</sup>

Each year a specific decision is made about how much to increase the standardized rate. For the first three years of the program, the update factor was set so as to make payments "revenue neutral," that is Medicare hospital payments were to be the same as they had been projected to be under TEFRA.<sup>36</sup> Since 1986, the update factor has been set by Congress and is based in part on recommendations by the Department of Health and Human Services (HHS) and the Prospective Payment Assessment Commission (PROPAC)—a Commission established by Congress to advise the Secretary of HHS and the relevant congressional committees<sup>37</sup> on various aspects of PPS.<sup>38</sup> In theory, the allowed increase in the standardized rate is based on the increase in prices that the hospitals have to pay for their inputs (the hospital's market basket), an allowance for technological change and an adjustment for productivity changes. In practice, the update factor is based largely on budgetary considerations.<sup>39</sup>

34. 42 C.F.R. § 412.80 (1988) specifies that HCFA is to provide additional payment approximating a hospital's marginal cost of care beyond thresholds specified by HCFA for covered inpatient hospital services. Outlier payments, however, are limited. The controlling statute requires that outlier payments "not be less than five percent or more than six percent of the total payments projected or estimated to be made based on DRG prospective payment rates for discharges in that year." 42 U.S.C. § 1395(d)(5)(A)(iv) (1982 & Supp. V 1987).

35. Thus, under current HHS policy, part of the revenues that a hospital receives for taking care of a Medicare patient are based on the prospectively set PPS rates, and part are based on the hospital's incurred costs. Originally, Medicare paid 100 percent of its share of capital and graduate medical education costs. It has been reducing this factor over time. See 42 U.S.C. §§ 1395ww(g)(1), (h) (1982 & Supp. V 1987).

36. 42 U.S.C. § 1395ww(e)(1) (1982 & Supp. V 1987).

37. The congressional committees with responsibility for the Medicare Program are the Senate Finance Committee and the House Ways and Means Committee.

38. The 1983 Social Security Amendments required the Director of the Congressional Office of Technology Assessment to appoint a Prospective Payment Assessment Commission. This commission consists of seventeen members including, but not limited to, physicians, hospital administrators, and hospital suppliers. The main duties of the Commission are to make recommendations to the Secretary of HHS regarding the increase in the prospective payment rates, the DRG classification system, and the DRG weights. 42 U.S.C. § 1395ww(e)(2), (3)(E) (1982 & Supp. V 1987).

39. Between 1985 and 1989 the PPS update factors were 4.5 percent, .5 percent, 1.15 percent, 1.5 percent, and 3.3 percent. These were below the increase in market basket costs in each year. However, payments per case actually increased more than these percentages indicate because of other changes in the system and because of the shift in the types of cases admitted. With all factors taken into consideration, PPS payments per case increased 42.6 percent between 1985 and 1989. See PROSPECTIVE PAYMENT ASSESSMENT



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The legislation also strengthened the role of the Peer Review Organizations.<sup>40</sup> All hospitals are to have an agreement with a Peer Review Organization. These organizations are responsible for monitoring the appropriateness of admissions, discharges and the quality of care provided under the prospective payment system. In addition, they review the validity of the diagnostic information provided by the hospital—the information which serves as the basis for classifying patients into the DRGs.<sup>41</sup>

PPS thus represents a radical change in the way that hospitals are paid for providing services to Medicare beneficiaries. In summary, a hospital's payment is not based on its own costs, but rather on the national average cost per case established in a base period. Since 1984, increases in the reimbursement rate have been influenced by political considerations and have lagged behind the rate of increase in actual hospital costs. Unlike the situation under cost-based reimbursement, PPS forces hospitals to risk incurring losses for treating Medicare patients. Moreover, since the PPS payments are associated with the diagnoses of individual patients, individual patients can be a source of profit or loss. Thus, PPS creates incentives for hospitals to limit the treatment given to Medicare patients and to avoid accepting certain high risk Medicare patients. These incentives pose a threat to quality of care.

### III. The Effects of the Prospective Payment System<sup>42</sup>

#### A. *Expected Impact of PPS*

The overall objectives of the Medicare prospective payment system were to promote efficiency and cost effectiveness in the production of hospital services, and to stem the growth in Medicare payments to hospitals, while at the same time continuing to ensure that Medicare beneficiaries of the program have access to quality health

COMMISSION, MEDICARE PROSPECTIVE PAYMENT AND THE AMERICAN HEALTH CARE SYSTEM REPORT TO CONGRESS 127-28 (1989) [hereinafter 1989 PROPAC Report].

40. The Peer Review Organizations were established under the TEFRA legislation. They replaced the PSROs—the Professional Standards Review Organizations. See Peer Review Improvement Act, Pub. L. No. 97-248, §§ 141-50, 96 Stat. 381 (codified as amended at 42 U.S.C. § 1320c (1982 & Supp. V 1987)).

41. 42 C.F.R. § 412.44 (1988).

42. This Part borrows heavily from Lave, *The Effect of the Medicare Prospective Payment System* in 10 ANN. REV. OF PUB. HEALTH 141 (L. Breslow, J. Fielding & L. Lave eds. 1989).

care.<sup>43</sup> Given the changes in the payment system wrought by PPS and the importance of Medicare payments to the hospital industry, one would expect that PPS should have a significant effect on "hospital behavior" and through that on other providers and consumers of health care.

In practice, however, it is difficult to isolate the specific effects of PPS. The 1980s have been years of remarkable change in the health care sector.<sup>44</sup> The number of people enrolled in Health Maintenance Organizations increased from 10.2 million in 1981 to 31.4 million in 1988.<sup>45</sup> The concept of managed care was extended into the traditional insurance sector.<sup>46</sup> Most states implemented tight prospective payment systems for Medicaid patients.<sup>47</sup> The number of people who were without health insurance increased dramatically.<sup>48</sup> Like PPS, these changes provide hospitals with incentives to reduce length of stay, and to decrease the cost of care provided. In addition, PPS was not the only change in Medicare policy: from July 1984 through December 1986 Congress also imposed a freeze on physicians' fees.<sup>49</sup>

43. See *Medicare Hospital Payment Rates: Hearings Before the Subcomm. on Health of the Senate Comm. on Finance*, 100th Cong., 1st Sess. 21 (1987) (statement of Nancy Gordon, Cong. Budget Office). The Ways and Means Committee Report on the bill states, "[t]his bill is intended to improve the Medicare program's ability to act as a prudent purchaser of services and to provide predictability regarding payment amounts for both the government and hospitals. More important, it is intended to reform the financial incentives hospitals face, promoting efficiency in the provision of services by rewarding cost/effective hospital practices." H.R. REP. NO. 25, 98th Cong., 1st Sess., pt. 1, at 132 (1983).

44. For a discussion of the changes in health care in the 1980s, see generally G. ANDERSON, J. LAVE, C. RUSSE & P. NEWMAN, *PROVIDING HOSPITAL SERVICES: THE CHANGING FINANCIAL ENVIRONMENT* (1989).

45. *AMERICAN MED. ASS'N, U.S. HEALTH CARE AT A GLANCE* (1989).

46. The term "managed care" refers to a set of cost monitoring administrative procedures such as utilization review, preadmission screening, and second opinion surgery. See Gabel, Jajich-Toth, de Lissovoy, Rice & Cohen, *The Changing World of Group Health Insurance*, *HEALTH AFF.*, Summer 1988, at 48; DiCarlo & Gabel, *Conventional Health Insurance: A Decade Later*, 10(3) *HEALTH CARE FIN. REV.* 77 (1989).

47. Prior to 1981, states were required to reimburse hospitals under Medicaid on a reasonable cost basis as then defined by Medicare, unless they had approval to use an alternative reimbursement system. The Omnibus Reconciliation Act of 1981, however, greatly enhanced the ability of the states to implement alternative payment systems. See *INTERGOVERNMENTAL HEALTH POLICY PROJECT, STATE SYSTEMS FOR HOSPITAL PAYMENT 1* (1989) (prepared by S. Laudicina).

48. Between 1978 and 1986, the number of uninsured individuals increased from 13.6 percent to 17.6 percent of the population. See G. ANDERSON, J. LAVE, C. RUSSE & P. NEWMAN, *supra* note 44, at 30.

49. Some analysts have argued that physicians respond to a fee freeze by increasing volume. See e.g., Reinhardt, *The Theory of Induced Demand: Reflections After a Decade*, 4 *J. OF HEALTH ECON.* 187 (1985). Cf. Feldman & Sloan, *Competition Among Physicians Revisited*, 13 *J. OF HEALTH POLICY, POLITICS & L.* 239 (1988). It is impossible to disentangle the

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The possible effects of PPS identified by HCFA when the program was first implemented are shown in Table One.<sup>50</sup>

Admittedly, this is an extensive list, but it clearly indicates that the health care system is an integrated one and that changes in one part of the system will reverberate throughout the system. Under PPS, hospitals are paid a fixed amount for taking care of a given patient; therefore, the hospital has an incentive to limit the services provided to inpatients, to increase efficiency, and to "unbundle" the services.<sup>51</sup> Some of these responses, such as changes in coding practices,<sup>52</sup> improvements in purchasing policies, and implementation of management information systems have little effect on Medicare beneficiaries. Other responses have a direct impact on beneficiaries by influencing where they receive care, how much care they receive, and the circumstances under which it is given. The supporters of PPS obviously hoped that the positive responses would dominate the negative ones and that the negative responses would be held to a minimum due to resistance by physicians, a concern for the hospital's reputation, the threat of malpractice, and the presence of the PROs.

Three of the anticipated effects of PPS are worth discussing in more detail. First, since under PPS hospitals are paid a fixed amount for taking care of a patient, each additional day of care provided adds costs but no revenues. Thus, the incentives are to decrease the length of stay as much as possible which can have mixed effects on the beneficiary. For example, because the length of

increase in outpatient volume resulting from the fee freeze from that due to PPS.

50. Similar lists were developed by other investigators. See, e.g., Lave, *Hospital Reimbursement under Medicare*, 62 MILBANK MEMORIAL FUND Q. 251 (1984); PROSPECTIVE PAYMENT ASSESSMENT COMMISSION, *MEDICARE PROSPECTIVE PAYMENT AND THE AMERICAN HEALTH CARE SYSTEM REPORT TO CONGRESS 14* (1986) [hereinafter 1986 PROPAC Report].

51. Unbundling occurs when services that were originally provided in the inpatient setting, and therefore would be covered by the PPS payment, are provided in another setting. For example, a patient about to undergo surgery used to have a series of tests in the hospitals the day before surgery. PPS provided an incentive to have those tests done on an outpatient basis prior to coming into the hospital; in that case, the PPS payment rate is not changed (at least not initially), the costs of inpatient care are decreased, and costs and revenues are increased in the outpatient side.

52. Under PPS, the hospital has an incentive to code the patient's diagnoses in such a way as to classify the patient into the DRG with the highest cost weight possible.

TABLE 1  
Expected Impact of Prospective Payment System (PPS)

Hospitals	Other Providers of Health Care	Medicare Beneficiaries
<p>Anticipated Economic Benefits</p> <p>Shorter hospital stay</p> <p>Fewer unnecessary tests and services</p> <p>Specialization economies of scale</p> <p>Adoption of cost-reducing technology</p> <p>Improvements in hospital management</p> <p>Improvements in hospital administrative data systems</p> <p>Reduction of excess hospital capacity</p> <p>Vertical integration of health care services</p>	<p>Increased provision of health care services in non-hospital settings</p> <p>Increased number of discharges from inpatient to cheaper post-hospital care</p> <p>Hospital acquisition of or contracting with other providers leading to smoother provision of a continuum of patient care</p>	<p>Part A liability to legal deductibles and coinsurance.</p>
<p>Unintended Economic Consequence</p> <p>Increases in unnecessary admissions, readmissions and transfers</p> <p>Increases in hospital case-mix, due to changes in coding procedures—"DRG creep"</p> <p>Separate provision of services which previously were considered part of routine inpatient care: unbundling</p> <p>Increase in "outlier" cases</p> <p>Higher expenditures on "pass-through" cost categories—capital, direct medical education, kidney acquisition</p> <p>Excessive rate of hospital closings</p>	<p>Pressure on physicians to change their practice patterns</p> <p>Fewer in-hospital physician consultations</p> <p>Increased frequency of minor surgical procedures</p> <p>More severely ill patients discharged from inpatient to post-hospital care</p> <p>Obstacles to providing a continuum of patient care, due to certificate-of-need restrictions, contracting prohibitions, etc.</p>	<p>Higher out-of-pocket costs, if Part B utilization increases</p>

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Hospitals	Other Providers of Health Care	Medicare Beneficiaries
<p>Anticipated Benefits in Quality of Care</p> <p>Specialization-increase in efficiency and proficiency</p> <p>Fewer unnecessary tests and services</p> <p>More selective use of new technology</p>	<p>More efficient management of patient care</p> <p>Increased skill levels for post-hospital provider personnel</p>	<p>Shorter hospital stays</p> <p>Lower rates of nosocomial infection</p> <p>Fewer in-hospital complications and deaths</p> <p>Fewer unnecessary tests and services</p> <p>Reductions in iatrogenic care</p> <p>Specialization-increase in efficiency and proficiency</p>
<p>Unintended Consequences in Quality of Care</p> <p>Competing incentives to health care providers, depending on the type of coverage</p>	<p>Tendency toward premature discharges</p> <p>Decrease in necessary tests and services</p> <p>Decrease in necessary physician consultations</p>	
<p>Anticipated Benefits in Access to Care</p> <p>Availability of more services on a regional level</p> <p>Shifting of services to more appropriate (and inexpensive) settings</p>	<p>Increased availability of services in non-hospital settings</p>	<p>Decrease in overall cost of services provided</p> <p>Shift in treatment to more appropriate settings</p> <p>Regional availability of broad range of services</p>
<p>Unintended Consequences in Access to Care</p> <p>"Dumping" of high-cost cases</p> <p>Reluctance of hospitals to accept cases in DRGs which are not profitable</p>	<p>Longer backlogs of patients waiting for post-hospital care.</p>	<p>Selective exclusion of high-cost case types</p> <p>"Dumping" of "unprofitable" types of patients</p>

ADAPTED FROM: Gutterman, & Dobson, *Impact of the Medicare Prospective Payment System on Hospitals*, 7(1) HEALTH CARE FINANCING REVIEW (1986).

stay is shorter the patient is less likely to get a "nosocomial infection,"<sup>53</sup> an "iatrogenic disease,"<sup>54</sup> or to experience hospital dementia. As a result, the quality of care provided may increase. However, while the abbreviated stay may be appropriate in the sense that the patient does not need the services of an acute care hospital, the patient may still need care.<sup>55</sup> In some cases this care may be provided by family members and thus lead to an increase in family burden. Therefore, the technical quality of the inpatient care could improve, while the quality of care as perceived by the patient decreased. In other cases, the reduction in the length of stay may be inappropriate in that the patients who should have been kept in the hospital and, as a result of the premature discharge, are at risk for increased morbidity.

Second, all patients assigned to a DRG are not identical. Within each DRG there are some patients who require more hospital resources than others. Thus, since the hospital receives the same payment for all patients in a DRG, some patients will add to hospital net revenues (profits) while others will decrease them.<sup>56</sup> Consequently, as indicated in Table One, analysts predicted that there would be incentives to admit the less seriously ill patients and to discourage the admission of more seriously ill or costly patients. Certain types of high cost patients who were potentially at risk were identified: the very old, patients who had renal failure, patients who needed enteral and parenteral nutrition, and patients transferred from nursing homes.<sup>57</sup>

Third, given fixed reimbursement rates, investing in technologies that led to lower costs would increase hospital profits. Thus, cost-reducing technologies were expected to be developed and hospitals

53. A nosocomial infection is an infection that occurs in the hospital and is related to a hospital event. The longer the patient is in the hospital, the more likely he or she is to get a nosocomial infection.

54. An iatrogenic disease is one resulting from the activity of a physician. It is applied to any condition in a patient occurring as a result of treatment by a physician or surgeon, such as a drug reaction.

55. Prior to the implementation of PPS, extensive data indicated that more acute hospital care was provided than was needed. See, e.g., Gertman & Rustuccia, *The Appropriateness Evaluation Protocol: A Technique for Assessing Unnecessary Days of Hospital Care*, 19 MED. CARE 855 (1981); Payne, *Identifying and Managing Inappropriate Hospital Utilization*, 22 HEALTH SERVICES RESEARCH 22 (1987).

56. The heterogeneity of cases assigned to the DRGs has plagued the classification system from its beginning. HCFA has funded a group at Yale University to do a substantial revision of the DRGs, and has funded a group of researchers at Queen's University in Kingston, Ontario to do a comparative evaluation of all the patient classification systems.

57. See, e.g., Anderson & Steinberg, *Prospective Payment and Nutritional Support: The Need for Reform*, 10(1) J. OF PARENTERAL AND ENTERAL NUTRITION 3 (1986).

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were expected to adopt them relatively rapidly. On the other hand, hospitals were expected to become more reluctant to purchase new technologies that might increase the quality of care but would only do so at an increased cost.<sup>58</sup> If hospitals decreased their purchase of cost-increasing, but quality-improving technologies, then the actual quality of care would not decrease, but it would be lower than that which would have prevailed under cost-based reimbursement.

### B. *Specific Findings on the Impact of PPS*

With this background, this section examines the empirical effects of PPS on a number of important variables. First it presents some of the factual findings, then it discusses the implications of those findings in the section on quality of care.

#### 1. *Medicare Admission Rates*

As shown in Table One, many investigators predicted that the implementation of PPS would be accompanied by an increase in hospital admissions in general, and by the admission of less seriously ill patients in particular.<sup>59</sup> Neither of these effects were realized. In fact, for the first three years of PPS, the Medicare admission rates fell—they have since stabilized.<sup>60</sup> Much of the decrease in the hospital admission rates reflects a change in the site at which care is rendered. This is dramatically illustrated by the example of cataract surgery: between 1983 and 1985 the volume of inpatient lens procedures decreased by 73 percent.<sup>61</sup> Additionally, contrary to predictions,<sup>62</sup> the average patient was more, rather than less, seriously ill on admission.

58. Anderson & Steinberg, *To Buy or Not To Buy: Technology Acquisition Under Prospective Payment*, 311 NEW ENG. J. OF MED. 182 (1984).

59. See Anderson & Steinberg, *supra* note 57; Horn, Bulkley, Sharkey, Chambers, Horn & Schramm, *Interhospital Differences in Severity of Illness: Problems for Prospective Payment Based on Diagnosis Related Groups (DRGs)*, 313 NEW ENG. J. OF MED. 20 (1985); Vladeck, *Comments on "Hospital Reimbursement Under Medicare"*, 62 MILBANK MEMORIAL FUND Q. 269 (1984).

60. Gutterman, Eggers, Riley, et al., *The First 3 Years of Medicare Prospective Payment*, 9(3) HEALTH CARE FIN. REV. 67 (1988).

61. Latta & Helbing, *Medicare: Short Stay Hospital Services by Leading Diagnosis Related Groups, 1983-1985*, 10(2) HEALTH CARE FIN. REV. 79 (1988). Cataract surgery increased in volume over this time period but it became an outpatient rather than an inpatient procedure.

62. See *infra* discussion at notes 68-71.

## 2. *Length of Stay*

As predicted, lengths of stay fell during the first years of implementation. Table 2 presents data on the actual length of stay as well as data on the 1981 case-weighted lengths of stay for different groups of DRGs for different years. The 1981 case-weighted length of stay presents a better picture of the decrease in the length of stay, since it controls for the change in the types of patients treated in hospitals. Following PPS there was a relative increase in admissions of patients with longer lengths of stay.<sup>63</sup> The decrease in length of stay can be accounted for in part by an increase in preadmission diagnostic testing, in part by a decrease in preoperative lengths of stay, and in part by a decrease in days at the tail-end of the stay.<sup>64</sup>

TABLE 2  
Average Length of Stay by Year and Type of DRG

Year	Length of Stay			
	Actual		1981 Case-Weighted	
	Medical	Surgical	Medical	Surgical
1981	9.44	11.06	9.44	11.06
1984	7.98	9.85	7.83	9.14
1985	7.27	9.89	6.98	8.13
1986	7.21	10.25	7.19	8.42

Unpublished data provided by HCFA.

## 3. *Hospital Admission of Vulnerable Populations*

PROPAC has monitored indicators of service use of beneficiary groups that are believed to be most susceptible to adverse effects of PPS. These groups include: the poor Medicare patient, the very old Medicare patient, and patients with certain diagnoses such as stroke

63. See Latta & Helbing, *supra* note 61, at 82.

64. See DesHarnais, Kobrinski, Chesney, Long, Ament & Fleming, *The Early Effects of the Prospective Payment System on Inpatient Utilization and the Quality of Care*, 24 INQUIRY 7 (1987).



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and pneumonia. It concluded that it did not observe any adverse effects among these indicators as a result of PPS.<sup>65</sup>

### 4. *Other Hospital Utilization Measures*

The implementation of PPS was accompanied by other changes in the use of hospital resources. For example, a significant decrease occurred in the proportion of Medicare patients admitted to intensive and coronary care units.<sup>66</sup> The use of social work services grew<sup>67</sup> reflecting the increased attention to hospital-discharge planning resulting from the incentives to decrease length of stay. Discharge planning has now become an essential hospital function.

### 5. *Patient Acuity*

All analysts who have studied the issue have found that the Medicare hospital inpatient population is becoming sicker.<sup>68</sup> There are two dimensions to this increased sickness. First, the kinds of cases being admitted to hospitals are changing. This is partially reflected in a shift in the distribution of patients among the diagnostic categories. For example, between 1983 and 1985 hospital admissions for lens procedures (DRG 39) decreased by 75 percent while the number of major reconstructive vascular procedures (DRG 110) increased by 71 percent.<sup>69</sup> Patients in the second category are, on average, sicker than those in the first. Second, for a given DRG, patients appear to be more seriously ill upon being admitted to the hospitals. For example, a study supported by HCFA indicated that within three sets of DRGs (pneumonia, stroke, hip replacement) the

65. 1989 PROPAC Report, *supra* note 39, at 15.

66. Deslarnais, Kobrinski, Chesney, et. al., *supra* note 64, at 13.

67. Lyons, Hammer, Larson, et al., *The Impact of a Prospective Payment System on Psychosocial Service Delivery in the General Hospital*, 25 MEDICAL CARE 140 (1987).

68. 1986 PROPAC Report, *supra* note 50, at 21.

69. This change is partially reflected in the case-mix index—an index which represents the relative costliness of a hospital's case-mix, and is created by multiplying the proportion of a hospital's cases falling in each DRG by the cost weight for each DRG, and summing up across all DRGs. For example, since lens procedures (DRG 39) have a 1988 cost weight of .5167, whereas major vascular procedures (DRG 110) have a cost weight of 3.6718, it is easy to see that a decrease of DRG 39 cases and an increase in DRG 110 cases will lead to an increase in the case-mix index. However, the change in the DRG case-mix index will overestimate changes in the real case-mix if coding practices change. See Ginsburg & Carter, *Medicare Case-Mix Index Increase*, 7(4) HEALTH CARE FIN. REV. 51 (1986).

severity level on admission as measured by the MEDISGRPS severity score had increased.<sup>70</sup>

### 6. *Use of Post-Hospital Services*

Following the implementation of PPS there was an increase in the proportion of beneficiaries who were discharged either to their home and provided with home health services, or to skilled nursing homes.<sup>71</sup> A study of patients in Oregon indicated that there was an increase in patient dependency level at discharge.<sup>72</sup> Patient dependency level is a function of a patient's activity level as measured by an ability to perform certain activities of daily living,<sup>73</sup> the need for supportive services such as indwelling catheters, and the presence of symptoms such as dizziness and nausea. The increased use of post-hospital services and increased dependency at discharge suggest that patients are being discharged "quicker, but sicker." This conclusion does not mean that patients are being inappropriately discharged, since they may not need the level of care provided by an acute care facility. However, it does imply that some of the recuperation which used to take place in hospitals now occurs elsewhere.

### 7. *Quality of Care*

The above discussion suggests that the location and type of care received by Medicare beneficiaries has changed. However, it does not indicate whether these changes have affected the quality of care received and, if so, how.<sup>74</sup>

70. Brewster, Karlin, Hyde, et al., *MEDISGRPS: A Clinically-Based Approach to Classifying Hospital Patients at Admission*, 22 *INQUIRY* 377 (1985).

71. Gutterman, Eggers, Riley, et al., *supra* note 60, at 69-72; 1986 PROPAC Report, *supra* note 50, at 21, 26; 1989 PROPAC Report, *supra* note 39, at 169-70.

72. Coe, Wilkinson & Patterson, Preliminary Evidence on the Impact of DRGs on Dependency at Discharge (unpublished paper on file with author) (May 1986).

73. Activities of daily living refer to basic self-help activities such as feeding, bathing, toileting, dressing, ambulation and ability to transfer from bed to chair.

74. Quality of care is a multidimensional construct with at least three different dimensions: structure, process, and outcome. It can be considered from the perspective of the patient or the physician. As noted in the text, technical quality can improve at the same time that quality as measured by patients' perceptions diminishes. The classic text discussing the meaning of quality of care is: I A. DONABEDIAN, *EXPLORATIONS IN QUALITY ASSESSMENT AND MONITORING: THE DEFINITION OF QUALITY AND APPROACHES TO ITS ASSESSMENT*, (1980). This book defines quality of care from the physicians' perspective, that is, in terms of health outcomes.

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*A priori*, hospital prospective payment could lead to either an improvement or a decline in the quality of services provided.<sup>75</sup> On the one hand, the financial incentives of PPS are to limit the quantity and cost of services provided. If services are inappropriately reduced, this reduction could adversely affect the health of Medicare beneficiaries. On the other hand, since hospitals receive a fixed amount per discharge, they may face stronger incentives to implement infection control procedures, to monitor drug therapy to reduce adverse drug reactions, and to avoid other types of iatrogenic disease. If these actions were implemented and were effective, then the quality of care would improve. PPS also could lead to a decrease in hospital investment in quality-improving, but cost-increasing, technologies which would result in a lower quality of care than would have been achieved under a cost-based reimbursement scheme.<sup>76</sup>

### a. *General Quality Information*

Most studies of the effect of PPS on quality of care have been based on readily available data such as death rates, readmission rates, and patient transfers from one type of facility to another.<sup>77</sup> For example, researchers have looked for gross indicators of quality deterioration such as changes in the mortality rate (both in-hospital death rates, and death rates either in or out of hospital which occurred within a certain date of admission) as well as readmission

75. General discussions of the likely effect of PPS on quality can be found in K.N. LOHR, R. BROOK, C. GOLDBERG, M. CHAISSIN, & T. GLENNAN, *IMPACT OF MEDICARE PROSPECTIVE PAYMENT ON THE QUALITY OF MEDICAL CARE: A RESEARCH AGENDA* (1985); Lave, *Prospective Payment: How will it Affect Hospital Quality of Care?*, 9 *GENERATIONS* 19 (1985); Stern & Epstein, *Institutional Responses to Prospective Payment Based on Diagnosis-Related Groups: Implications for Cost, Quality, and Access*, 312 *NEW ENG. J. OF MED.* 621 (1985); Wyszewianski, Thomas & Friedman, *Case-Based Payment and the Control of Quality and Efficiency in Hospitals*, 24 *INQUIRY* 17 (1987).

76. Anderson & Steinberg, *supra* note 58.

77. Many of these analyses were based on data from the HCFA administrative data base. These data include information on whether Medicare beneficiaries are still living, where they live, the services they use, and information on each hospitalization. Since most of the data is kept by beneficiary number, it can be linked across data systems. Other administrative data systems also have been used. For example, a number of analysts have used discharge data collected by the Commission on Professional and Hospital Activities. These data are more limited than the HCFA data because it is impossible to link across hospital episodes, and because their hospital mortality data is less complete; these data merely indicate whether the patient died in the hospital.

rates.<sup>78</sup> Using these kinds of measures, researchers have not found any decrease in quality of care since the implementation of PPS.<sup>79</sup>

Some case studies, however, suggest otherwise. For example, in a widely cited paper, John Fitzgerald and colleagues compared length of stay and outcome of patients with hip fractures who were treated in a large community hospital between 1981 and 1986.<sup>80</sup> They found that compared to patients who had been admitted prior to PPS, patients in the PPS period had much shorter lengths of stay, were less ambulatory at discharge, and were more likely to be transferred to a nursing home. As indicated previously, early discharges from a hospital do not necessarily imply that overall quality of care has deteriorated because less acute facilities may be more appropriate settings for rehabilitation and recuperation. However, Fitzgerald also found that, relative to the patients hospitalized before PPS, PPS patients were more likely to be in a nursing home one year following discharge. This latter finding is consistent with a decline in quality of care. Two other studies on the effect of PPS on hip fracture patients found that quality of care improved or remained the same over the time period studied by Fitzgerald.<sup>81</sup>

Case studies can be misleading as they do not provide specific information on individual patients. Fortunately, the RAND corporation has been funded to conduct a major study on the quality of care.<sup>82</sup> RAND has been studying the effect of PPS on the process of care and health outcomes for six specific diagnoses—hip fracture, congestive heart failure, acute myocardial infarction, stroke, pneumonia, and depression. In doing this research, RAND has examined the medical records of approximately 20,000 Medicare patients in twenty-four hospitals in six states. Their findings should be released in 1990.

78. See Eggers, *Prospective Payment System and Quality: Early Results and Research Strategy*, HEALTH CARE FIN. REV., ANN. SUPP. 29 (1987); Desharnais, Kobrinski, Chesney et al., *supra* note 64, at 10-12; 1989 PROPAC Report, *supra* note 39, at 24, 35-36. See also 1986 PROPAC Report, *supra* note 50, at 62 (stating that more sensitive measures are needed).

79. See Eggers, *supra* note 78, at 36; 1989 PROPAC Report, *supra* note 39, at 21-30.

80. Fitzgerald, Moore & Dittus, *The Care of Elderly Patients with Hip Fractures*, 319 NEW ENG. J. OF MED. 1392 (1988).

81. Gerety, Soderholm-DiFatte & Winograd, *Impact of Prospective Payment and Discharge Location on the Outcome of Hip Fracture*, 4 J. OF GEN. INTERNAL MED. 388 (1989); Palmer, Saywell, Zollinger, et al., *The Impact of the Prospective Payment System on the Treatment of Hip Fractures in the Elderly*, 149 ARCHIVES OF INTERNAL MED. 2237 (1989).

82. Kahn, Rubenstein, Draper, et al., *The Impact of the DRG-Based Prospective Payment on Quality of Care for Hospitalized Medicare Patients* (unpublished preliminary paper).

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### b. *Concern For Quality*

In spite of the fact that most available studies indicate that the quality of care has not declined under PPS, the threat PPS poses to quality of care continues to be perceived as a potential weakness in the new system. A number of conferences have been held on quality issues.<sup>83</sup> In response to requests by Congress, both the General Accounting Office and the Office of Technology Assessment have developed guidelines for monitoring quality of care.<sup>84</sup> HCFA has allocated a significant proportion of its budget to research on quality, while PROPAC also has supported work in this area and will continue to do so.<sup>85</sup>

### c. *Technology*

As noted above, considerable concern existed that PPS would lead to a decrease in the introduction of cost-increasing, but quality-improving new technologies. PROPAC has been monitoring the development of new technologies since the implementation of PPS. It has concluded:

Overall there appears to have been continued growth in the acquisition and use of many major new technologies. *Although it is difficult to identify a correct rate of diffusion for each of the technologies discussed*, the data (presented in the report) do not indicate any adverse effects on the availability of these technologies.<sup>86</sup>

This conclusion, however, is not universally agreed upon. Among the new technologies studied by PROPAC were the low-osmolality and nonionic contrast agents used in diagnostic imaging procedures, which provide better resolution, less discomfort, and less risk than traditional compounds. However, they are from six to twenty times more expensive than traditional agents. Data currently indicate that

83. See e.g., Davis, *Quality of Health Care Measurement: A Research Priority*, HEALTH CARE FIN. REV. ANN. SUPP. 1, (1987).

84. GENERAL ACCOUNTING OFFICE, IMPROVING QUALITY OF CARE ASSESSMENT AND ASSURANCE (1988); OFFICE OF TECHNOLOGY ASSESSMENT, MEDICARE'S PROSPECTIVE PAYMENT SYSTEM: STRATEGIES FOR EVALUATING COSTS, QUALITY AND MEDICAL TECHNOLOGY (1985).

85. PROPAC has committed itself to future research on quality of care. See 1989 PROPAC Report, *supra* note 39, at 32.

86. *Id.* at 17 (emphasis added).

they are being used in approximately 15 percent to 20 percent of contrast injections. William Schwartz, a physician and nationally recognized health care policy analyst, is among those who believe that these agents should be used in all cases.<sup>87</sup> Low osmolar contrast agents represent an interesting example of the technology dilemma. If they were used for all possible patients, the incremental health care costs would be about 1 billion dollars. Most practitioners recommend that they be used only in high-risk cases which constitute about 15 to 20 percent of all cases. (The extent to which current use is actually targeted only at high-risk patients is not known.) It is estimated that if these agents are used for high-risk patients only that approximately 292 case fatalities would be avoided at a cost of 1 million dollars per death averted; if they were used for all patients, an additional 117 deaths would be averted at a cost per averted death of 7.5 million dollars. Use of these agents would also reduce the pain and suffering of all patients who were treated. The extent to which current use is targeted specifically at high-risk patients is not known; in the absence of cost controls, these agents would be used in almost all cases.<sup>88</sup>

Similarly, a recent study which appeared in the *New England Journal of Medicine* investigated the diffusion of cochlear implants—devices that improve hearing.<sup>89</sup> Cochlear implants are medical devices which were approved by the HCFA in 1986. However, in order for hospitals to be reimbursed for providing cochlear implants to Medicare patients, those patients had to be assigned to a DRG. Rather than creating a new classification, HCFA assigned these cases to an existing DRG. The average payment for that DRG did not cover the cost of the implant. The investigators estimate that hospitals lost about 3,000-5,000 dollars per implant.<sup>90</sup> Only a small number of beneficiaries received the cochlear implants and consequently both the original manufacturer and two others have stopped making the devices. The investigators attribute the limited diffusion of this technology to the Medicare payment policy.<sup>91</sup>

87. Interview with William Schwartz.

88. See Jacobson & Rosenquist, *The Introduction of Low-Osmolar Contrast Agents in Radiology*, 269 J.A.M.A. 1586 (1988) (recommending use of agents only in high-risk cases). But see Interview with William Schwartz, *supra* note 87 (recommending more widespread use).

89. Kane & Manoukian, *The Effect of the Medicare Prospective Payment System on the Adoption of New Technology: The Case of Cochlear Implants*, 321 NEW ENG. J. OF MED. 1378 (1989).

90. *Id.* at 1381.

91. *Id.*

## Medicare Prospective Payments

### IV. Suggestions for the Future

PPS has had a profound impact on Medicare beneficiaries: it has influenced whether beneficiaries are admitted to the hospital, the type of care they receive while hospitalized, and how long they stay once admitted. As noted above, it is difficult to determine whether observed changes in health care delivery are the result of PPS, or whether they have occurred for other reasons. However, the changes are consistent with the expected impacts of PPS, suggesting that the program has been effective. For example, although new and expensive technologies have continued to diffuse under PPS, some data indicates that diffusion of some technologies has been slowed.

#### A. Outlook for the Future

In spite of the widespread concern that PPS would lead to a deterioration in quality of care and to a reduction in access to care for certain high cost patient groups, no systematic evidence exists indicating that those outcomes occurred. However, because hospitals' overall financial condition has worsened considerably since the first years of PPS, these benign effects may not continue in the future. Table 3 presents data on PPS operating margins. During the first two years of PPS, the median hospital<sup>92</sup> had PPS operating margins of about 12 percent<sup>93</sup> but by the fourth year its operating margins had dropped to 1.6 percent.<sup>94</sup> Since the increase in standardized rates for fiscal year 1990 were set very close to the market basket

92. The median marks the midpoint of the distribution of hospitals. More than one hospital can be at the median.

93. PPS rates originally were set so that an average hospital's costs would be covered. The high Medicare profits many hospitals realized during the early years of the program were due to a number of factors: the original payment rates were based on unaudited cost data and may have been set too high, hospitals increased their revenues by inflating the value of their case-mix (DRG creep), the adjustment for the indirect costs of graduate medical education was too high, and, as shown above, hospitals responded to PPS by decreasing lengths of stay, reducing the use of ancillary services, and taking other steps to reduce expenses. See *Hearings Before the Subcomm. on Health of the House Comm. on Ways & Means*, 100th Cong., 1st Sess. 11 (1987) (statement of Nancy Gordon, Cong. Budget Office).

94. See *supra* Table 3.

Table 3  
 Percentile Distribution of PPS Operating Margins\*  
 First Four Years of PPS

	<u>FY 1983</u>	<u>FY 1984</u>	<u>FY 1985</u>	<u>FY 1986</u>
10th percentile	- 8.0%	- 8.2%	-18.5%	-24.4%
25th percentile	2.4	2.2	- 4.4	- 9.5
Median	11.0	10.7	5.4	1.6
75th percentile	17.5	17.9	13.3	10.6
90th percentile	23.3	24.2	20.2	18.3
Percent with negative PPS operating margin	18.3	18.8	34.3	46.5

\*PPS operating margins are equal to the difference between the hospital's operating revenues that are attributed to Medicare patients and revenues received from PPS. Total Medicare margins would be somewhat lower since Medicare only reimburses about 85 percent of the Medicare share of capital costs.

SOURCE: Prospective Payment Assessment Commission, *Medicare Prospective Payment and the American Health Care System*, Report to the Congress, p. 136, June 1989.

NOTE: The data excludes hospitals in states which waived out of the PPS program. Hospitals in Maryland and New Jersey were waived from PPS for all four years; Massachusetts and New York were waived in FY 1983 & FY 1984.



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inflation rate,<sup>95</sup> and hospital costs have been increasing more rapidly than the cost of the market basket,<sup>96</sup> it is likely that the median hospital now has negative PPS operating margins.

It is possible that hospitals could restore their operating margins by decreasing costs through improving hospital productivity. However, most of the obvious cost-saving measures such as reducing lengths of stay and improving hospital management systems already have been taken. New steps will be more difficult and are much more likely to involve fundamental changes in the way medicine is practiced. Because the more difficult changes are likely to be politically contentious and unpopular, it is unclear whether either industry or governmental policy makers will commit to them. If they do not, some of the adverse effects of PPS that were anticipated at its inception, such as discrimination against more costly patients assigned to a given DRG, may become a reality.

For example, one area where hospitals may attempt to reduce costs is in their Intensive Care Units (ICUs). Care in ICUs is very expensive, and much of it is provided to patients who are unlikely to leave the hospital alive.<sup>97</sup> Significant cost savings would be realized if ICU care of very marginal effectiveness were reduced or eliminated.<sup>98</sup> As a result of research involving ICU patients, physician decisionmakers have good information on the characteristics of ICU patients who are likely to leave the hospital alive.<sup>99</sup> However, the possibility of rationing ICU care raises a whole host of bioethical issues which complicate and politicize cost decisions and which must be resolved simultaneously if cost decisions are to be made responsibly.

Even if all waste were eliminated and marginally effective care was curtailed, pressures on hospital costs are likely to continue to rise.<sup>100</sup> Henry Aaron provides support for this belief:

95. See 42 U.S.C.A. § 1395ww(b)(3)(B)(i) (1990).

96. 1989 PROPAC Report, *supra* note 39, at 131.

97. This issue is discussed in considerable detail in *RATIONING OF MEDICAL CARE FOR THE CRITICALLY ILL* (M. Strosberg, I.A. Fein and J.D. Carroll eds. 1989) (collected essays) [hereinafter *RATIONING OF MEDICAL CARE*].

98. M.H. Weil argues that so much inappropriate care is delivered in the ICU that "appropriate" care does not need to be rationed. See Weil, *Alternatives to Rationing in RATIONING OF MEDICAL CARE*, *supra* note 97, at 17-23.

99. Knaus, Zimmerman, Wagner, Draper, & Lawrence, *APACHE—Acute Physiology and Chronic Health Evaluation: A Physiologically Based Classification System*, 9 *CRITICAL CARE MEDICINE* 591-97 (1981).

100. There is considerable debate among experts as to whether eliminating all waste would require sacrificing some effective care. However, defining effective care itself involves a value judgement, and much care can be effective, but only marginally effective. These

There is no indication that the technological creativity that has been largely responsible for the very rapid growth in medical outlays is abating. Scientific imagination, which has given us various kinds of transplants and the new methods of treatment and diagnosis that have been driving up expenditures, is likely to push even harder in the future.<sup>101</sup>

In short, state of the art treatment continues to grow more expensive. If medical inflation is to be checked, the growth of service intensity must be controlled. Better methods must be found for allocating high-cost procedures and reducing the use of marginally effective services. Moreover, policies aimed at limiting the growth of service intensity should be adopted.

The financial difficulties arising from the increase in service intensity are not due to PPS *per se*, but rather to policy decisions made to limit Medicare payments. Obviously, congressional decisions on annual PPS rates increases will influence how much pressure we as a nation feel to respond to the deeper problems. Even if Congress discarded PPS, its replacement also would have to contain limits, and ultimately, the difficult issues of controlling technology and reducing service intensity will need to be addressed.<sup>102</sup>

#### B. *Recommendations for Change*

As the financial conditions facing hospitals become increasingly constrained, it is important that government and private agencies continue to invest in improving quality assessment and our knowledge of medical effectiveness. Physicians and the rest of the community need good information to make good decisions.

The structure of PPS also needs to be adjusted to respond to changing financial conditions. PROPAC annually makes a series of

issues are discussed with respect to intensive care in RATIONING OF MEDICAL CARE, *supra* note 97.

101. Aaron, *Lessons from the United Kingdom*, in RATIONING OF MEDICAL CARE, *supra* note 97, at 24.

102. This view is not universally held. For example, Eli Ginzberg notes that: "High Tech Medicine is normative medicine in the United States and it is evident from both utilization trends and opinion polls that the American people favor it. Accordingly, health care costs, in all probability, will continue to increase." Ginzberg, *High-Tech Medicine and Rising Health Care Costs*, 263 J.A.M.A. 1822 (1990).

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recommendations on PPS.<sup>103</sup> I would propose three additional recommendations for changing the structure of PPS beyond those made by PROPAC.<sup>104</sup> If implemented, these recommendations would change the distribution of payments across hospitals. The recommendations are based on my belief that the current system does not give sufficient recognition to the factors that influence the level of costs of individual institutions. Consequently, some hospitals may be under increased financial pressure and their patients at relatively greater risk, not because these hospitals are inefficient, but because their patients or their inputs are more costly in ways that we cannot or do not measure.<sup>105</sup> For example, public hospitals because of their size, because they serve as hospitals of last resort, and because many of their patients may lack the home supports necessary for early release, may inevitably incur irreducibly greater expenses per case than private hospitals.

### 1. *Rebase PPS*<sup>106</sup>

The national DRG rates are based on 1981 cost data. HCFA increased the rates formulaically until 1984. Since then, annual increases in rates have been established through the political process. As a result, the rates do not reflect the actual costs of treatment. It is now time to catch up. Individual hospitals' actual costs should be calculated for the most recent time period and these should form the basis for both the national and the hospital-specific components of new rates. This recommendation accommodates the increase in

103. Each year PROPAC submits a written request to Congress to the Secretary of Health and Human Services. Its most recent report to Congress was issued in June 1989. I agree with most of PROPAC's changes.

104. I discuss three recommendations that are somewhat controversial. Virtually all commentators agree that efforts should be made to improve the classification system, to improve measures of quality of care, and to continue the research on program effectiveness.

105. Current adjustment factors in PPS include the SMSA wage rate, the number of residents per bed, and the number of Medicaid elderly. 42 U.S.C.A. §§ 1395 ww (d)(3), (5) (1990). Most state prospective payments systems adjust for many more factors. The New Jersey prospective payment plan, for instance, includes adjustments for labor costs, costs of supplies and utilities, insurance costs and equipment costs. See N.J. ADMIN. CODE Tit. 8, §§ 31B-3, 31B-3 Appendix II (1988).

106. The rebasing option proposed here is different from that proposed by others. For example, in proposing options for reducing the federal budget, the Congressional Budget Office has proposed that PPS be rebased. It suggests using the best 1987 cost data to rebase PPS and then trending that forward to adjust for inflation. See CONGRESSIONAL BUDGET OFFICE, REDUCING THE DEFICIT: SPENDING AND REVENUE OPTIONS, A REPORT TO THE SENATE AND HOUSE COMMITTEES ON THE BUDGET—PART 11, at 99 (1989). The proposal outlined here would rebase the system using more recent data. In addition, it would add a small hospital-specific portion to the rates.

costs as reflected by the increase of service intensity that has taken place since the implementation PPS. If policy makers do not want to accommodate all the change in service intensity, they could determine the hospitals costs for an earlier year, for instance 1987, and trend the rates forward to 1990 using the PPS update factor.<sup>107</sup>

## 2. *Include a Hospital-Specific Component in the Rate*

When PPS was first implemented, it included a transitional hospital-specific component in the rate at which it reimbursed each hospital. Originally, the prospective payment rate was based 75 percent on the hospital's own costs, and 25 percent on national and regional costs. Congress adjusted the relative percentages each year to phase out the hospital-specific component.<sup>108</sup> Since 1988, Congress has based the rates fully on national and regional costs. I would recommend that after the system is rebased, new PPS rates should be established with a seventy-five percent national weight and twenty-five percent hospital-specific weight. The hospital-specific weight would correct for those unmeasured factors that influence hospitals' costs. In other words, retaining a hospital specific component protects hospitals against the fact that our patient classification system will never be perfect and our set of adjustment factors will never be complete. The hospital-specific component would be determined for the year in which the system was rebased and trended forward to the present.<sup>109</sup>

107. The PPS update factor is the term used to refer to the discretionary increase in reimbursement rates each year. The update factor includes a component which reflects changes in market basket prices and a component which reflects changes in customary treatment and technology. For a more comprehensive discussion of the PPS update factor, see *Hearing Before the Subcomm. on Health of the Senate Comm. on Finance*, 100th Cong., 1st Sess. 24 (1987) (statement of Nancy Gordon, Cong. Budget Office). The update factors for each year are listed in the statute. See 42 U.S.C. § 1395ww(b)(3)(B)(iii) (1982 & Supp. V 1987).

108. 42 U.S.C. § 1395ww(d)(1)(C) (1982 & Supp. V 1987).

109. Others also recommend incorporating a hospital-specific component into PPS. Hadley, Zuckerman & Feder, *Profits and Fiscal Pressure in the Prospective Payment System: Their Impact on Hospitals*, 26 INQUIRY 354 (1989).

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### 3. *Increase the Number of Adjustment Factors*

PPS allows for an adjustment for regional differences in labor costs, but it does not recognize differences in nonlabor costs.<sup>110</sup> These costs, too, vary geographically. For example, in 1986, across fifteen urban areas in the continental USA, the price of piped gas ranged from \$41.24 to \$65.29 per 100 therms, that of electricity ranged from \$37.15 to \$58.19 per 500 Kilowatt hour, and that of fuel oil ranged from \$.767 to \$.988 per gallon.<sup>111</sup> The government should develop and implement a nonlabor price index to adjust for the differential costs of essential utilities and supplies.

These recommendations, if implemented, would not constitute a return to cost-based reimbursement. The basic structure of PPS would remain unchanged. A standard rate would be determined for each hospital, and that rate would be multiplied by the DRG cost-weight to determine the hospital's payment for a given diagnosis. The DRG cost weights would be increased annually through the political and regulatory process. The major difference introduced by my recommendations is that the system would be rebased periodically. This would make PPS payment rates more responsive to the evolving and variable economic environments within which hospitals operate. The United States is a large and diverse country, and the uniformity of the current system does not allow it to meet the broad range of the country's health care needs.

The above recommendations are offered on the assumption that PPS will continue to be an important policy instrument for Medicare. Although a number of plans for eliminating PPS and completely restructuring Medicare have been suggested, they are beyond the scope of this Article.

### Conclusions

The Medicare Prospective Payment System represents a very different way of paying for hospital services provided to Medicare beneficiaries than the retrospective cost-based reimbursement system Congress originally implemented. PPS is, however, only one of many changes that affected the hospitals' financial environment during the 1980s. Consequently, it is difficult to isolate the impact of PPS.

110. For a list of adjusted factors PPS does include, see *supra* note 105 and accompanying text.

111. U.S. BUREAU OF THE CENSUS, STATISTICAL ABSTRACT OF THE UNITED STATES 479 (1989).

Nevertheless, a number of changes have taken place that are consistent with the incentives imbedded in PPS, including, a decrease in the average hospital length of stay, an increase in the use of ambulatory services, an increase in discharges to skilled nursing facilities, and discharges to the home with home health aids. Since the implementation of PPS, the acuity of patients actually admitted into hospitals also has increased.

This Article argues that the evidence to date indicates that the implementation of PPS has not been accompanied by a decrease in quality of care or by discrimination against more seriously ill patients. However, since the general financial condition of hospitals has deteriorated significantly in the past few years, further shortfalls may seriously threaten quality of care. Since the national rate now in effect under PPS does not adequately adjust for the factors that influence the level of costs in specific hospitals, changes to the structure of PPS would make the system more sensitive to the costs of individual institutions.

Some evidence suggests that PPS has influenced the diffusion of new technologies into the health care system since certain technologies would have been used more widely if hospitals were still being paid on the basis of retrospective costs. Thus, PPS has made a small inroad into the problem of curtailing the growth of service intensity. However, if medical inflation is to be controlled, more work needs to be done to control this component of medical inflation. Research and policy must focus on determining the effectiveness of particular medical practices and the usefulness of both old and new technologies so that informed choices can be made. The challenge of the future is to recognize our medical limits, and to develop policies to ensure that wise decisions are made within them.