The Impact of PSROs on Health-Care Costs: Update of CBO's 1979 Evaluation

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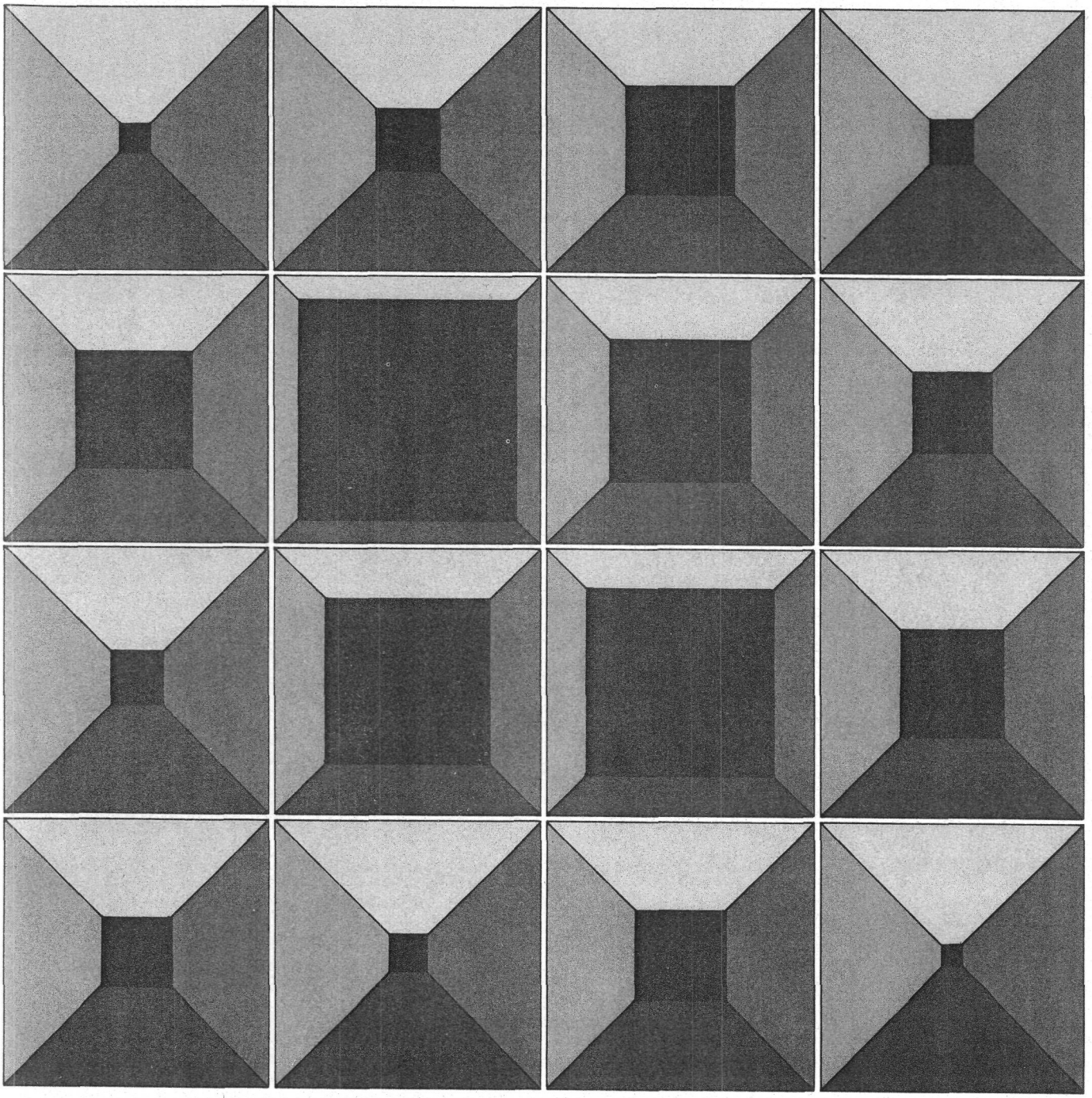

THE IMPACT OF PSROs ON HEALTH-CARE COSTS:

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The Congress of the United States
Congressional Budget Office

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PREFACE

At the request of the Subcommittee on Oversight of the House Committee on Ways and Means, the Congressional Budget Office prepared this staff working paper updating the June 1979 CBO evaluation of the Professional Standards Review Organizations (PSROs). This analysis parallels the earlier evaluation in focusing on the PSRO program's effects on Medicare hospital utilization and costs. In keeping with CBO's mandate to provide objective analysis, this study offers no recommendations.

Daniel Koretz of CBO's Human Resources and Community Development Division prepared the analysis under the supervision of Paul B. Ginsburg, David S. Mundel, and Nancy M. Gordon. Thanks are due to many people in the Health Care Financing Administration (HCFA), especially Allen Dobson and Roger McClung, for their cooperation and assistance. The author is particularly grateful to Paul Eggers of HCFA for his generous contributions of time and effort and his helpful comments. Patricia H. Johnston edited the manuscript and Rosetta Swann and Toni Wright typed the drafts of this report and prepared the final manuscript.

Alice M. Rivlin
Director

January 1981

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SUMMARY

The rapid increase in federal expenditures for health care since the enactment of Medicare and Medicaid in the mid-1960s has engendered Congressional concern about the costs and quality of these programs. The Professional Standards Review Organization (PSRO) program, established in 1972, is one attempt to meet these concerns through peer review of health services financed under the Social Security Act. Although this program's goals include both restraining the use and ensuring the quality of health-care services, in practice it has placed greater emphasis on the control of utilization--in particular, the control of inpatient use of short-stay hospitals.

The analysis in this paper updates the June 1979 Congressional Budget Office (CBO) evaluation of the PSROs as a means of controlling hospital utilization and attendant health-care costs.[1] The former report covered the program's impact in 1977; this report analyzes 1978 data, the most recent available. Consistent with the 1979 CBO evaluation, this paper considers neither the costs nor the benefits of the quality-assurance portion of the PSRO program.

The 1978 data indicate that the PSRO program's utilization and cost-control efforts have met with mixed success:

- PSRO review does reduce Medicare days of hospitalization, but there is no good information concerning the program's effect on Medicaid hospitalization.
- PSRO review has reduced Medicare outlays, but the federal government saves little more than the cost of the review itself.
- PSRO review of Medicare patients reduces Medicare outlays in part by transferring costs to private patients,

1. Congressional Budget Office, The Effects of PSROs on Health Care Costs: Current Findings and Future Evaluations, June 1979. The Executive Summary of that report is appended to this report as Appendix A.

whose charges will rise accordingly. When the increased costs to private patients are taken into account, PSRO review saves society as a whole substantially less than it costs.

DOES PSRO REVIEW REDUCE USE OF INPATIENT HOSPITAL CARE?

The 1978 data suggest that a PSRO program in which all Medicare hospital patients are reviewed would reduce Medicare days of hospitalization by about 1.5 percent.[2] The effect of the current "focused" system, in which only a fraction of cases are reviewed, is probably less, but there are as yet no data indicating how much less.

The evidence that PSROs reduce Medicare utilization, however, is not firm. Considering the nation as a whole, the program's apparent effect is sufficiently small and variable that it could be an artifact of chance variation in the data. Moreover, in the South, PSRO review seems to increase utilization, a pattern that is difficult to explain and throws all the results into some doubt.

PSROs affect utilization by Medicare patients primarily by shortening hospital stays rather than by preventing admissions. Of the days of care saved in 1978, roughly 90 percent can be attributed to shortened lengths of stay. Since the first days of hospitalization are usually more expensive than subsequent days, this effect does not reduce costs as much as would a comparable change in utilization by means of admission denials.

There are still no data with which to assess reliably the program's effect on Medicaid patients. Differences in the characteristics of the Medicare and Medicaid populations, however, suggest that PSROs are likely to have less impact on Medicaid utilization.

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2. The difference between this figure and the comparable figure (2 percent) in the earlier CBO report reflects refinements in the estimating procedure rather than a decline in PSRO performance. The same is true of the savings-to-cost ratios presented below. Had the 1977 data been analyzed with this year's methods, the results would have been similar to those presented here.

HAS PSRO PERFORMANCE IMPROVED?

The earlier CBO report noted that, as of 1977, there was no evidence that PSROs become more effective in reducing utilization as they gain experience, and the more recent data confirm that finding. The program's performance did not improve appreciably between 1977 and 1978, even though the average duration of the program in active PSRO areas increased from 16 to 25 months during that interval.

DO PSROs SAVE MONEY?

Total Resource Savings. Although PSROs appear to reduce Medicare utilization, the program consumes more resources than it saves society as a whole. The 1978 data indicate that, for every dollar spent on PSRO review of Medicare patients, only $.40 in resources were recouped, for a net loss of $.60.[3] This corresponds to a savings-to-cost ratio of 0.4-to-1.[4] Because PSROs are a part of the health-care system, this finding indicates that, by channeling resources into the PSRO program, society increases slightly its total expenditures for health care.

Since PSRO review replaces earlier forms of utilization review, however, it is not always appropriate to compare the savings generated by PSROs to the full cost of PSRO review. When evaluating the impact of the entire PSRO review system--rather than the effects of marginal changes in PSRO funding and activity--it is appropriate to subtract from PSRO costs the cost of the earlier utilization review that it superseded. This is called the "incremental cost" of PSRO review.

Since the incremental cost of the program is substantially smaller then its total cost, considering only incremental costs casts the program in a more favorable light. The 1978 data indicate that resource savings from PSRO review are only 20

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3. In all instances, only the portion of the PSRO program's costs that can be allocated to its utilization-reduction activities were considered.

4. All savings-to-cost ratios presented here assume both the costs and the benefits of reviewing all Medicare admissions. The effect on these ratios of the change to focused review is unknown.

percent less than the program's incremental cost, corresponding to a savings-to-cost ratio of 0.8-to-1 (whereas resource savings are, as noted, 60 percent less than the program's total cost).

DO PSROs REDUCE FEDERAL OUTLAYS?

Budgetary Savings. Although the PSRO program results in a loss in societal resources, it has little impact on federal outlays. PSRO review--and any other review system that succeeds in lowering Medicare utilization--affects federal reimbursement payments in two ways: by changing total resource expenditures for health care, and by transferring fixed costs to the private sector. This paper uses the term "reimbursement savings" to refer to the federal reimbursement change stemming from both of these factors. Subtracting program costs from reimbursement savings yields the program's net impact on federal outlays.

The 1978 data indicate that each dollar spent on review yields about 90 cents in reimbursement savings, corresponding to a savings-to-cost ratio of roughly 0.9-to-1.[5]. The net budgetary impact is accordingly a $.10 loss for every dollar in total program expenditures.[6]

When only the incremental cost of the program is considered, however, PSRO review produces a small net budgetary savings. Reimbursement savings from Medicare review exceed the incremental cost of those activities by about 20 percent, a savings-to-cost ratio of 1.2-to-1.

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5. This ratio of 0.9-to-1 corresponds to the benefit-cost ratio of 1.269-to-1 in the most recent evaluation of the program by the Health Care Financing Administration (HCFA) in that both figures estimate the ratio of reimbursement savings to total program costs. HCFA, 1979 PSRO Program Evaluation (1980).

6. This figure, like the estimate above of the program's impact on total resources spent for health care, considers only the Medicare portion of the program. If Medicaid review were included--and if it were assumed that PSROs are equally effective with Medicaid and Medicare utilization--this ratio would drop to 0.75-to-1. This is because some of the Medicaid reimbursement savings would go to states rather than to the federal govenrment.

Three general conclusions can be drawn from this array of savings-to-cost estimates:

- The net budgetary savings from PSRO Medicare review (considering only the program's incremental cost) is small, amounting to less than one-tenth of one percent of Medicare hospital insurance (Part A) outlays.

- The net budgetary savings from PSRO review (reimbursement savings-to-incremental cost ratio of 1.2-to-1) contrasts with a roughly equivalent net increase in the resources consumed for health care by society as a whole (resource savings-to-incremental cost ratio of 0.8-to-1).

- This discrepancy between budgetary and societal effects stems from the fact that roughly half of the gross reimbursement savings from PSRO review consist of fixed costs that are transferred to private patients.

WHAT QUESTIONS REMAIN UNANSWERED?

Although the overall PSRO impact on Medicare hospital use is assessed in this report, many questions about the program's effects remain unanswered, including the following:

Do PSRO Utilization Control Activities Have Hidden Costs and Benefits? The activities PSROs conduct to control utilization and costs may have a wide variety of costs and benefits not reflected in the savings-to-cost estimates presented in this paper. For example, although these activities are largely distinct from PSROs' quality-assurance activities, they undoubtedly have both positive and negative effects on quality of care in some instances. They may provide psychological benefits to patients who are eager to leave the hospital, but generate severe stress for families ill-equipped to provide home care for the chronically infirm. Since information on such additional costs and benefits is lacking, any evaluation of the program can only provide an incomplete and perhaps misleading view of the program's impact.

As a first step toward assessing these as yet hidden effects, it is important to collect representative information on the health status of patients whose hospital stays are denied or shortened by PSROs, their subsequent care, and so forth.

Are PSRO More Effective with Certain Types of Patients? The existing research clarifies the average effect of PSRO review on hospital use by Medicare patients, but little is known about PSRO's relative effectiveness with other types of patients. The most important of other patient groups to investigate further is Medicaid patients, since PSRO review of their hospital use is mandated by law and consumes a sizeable portion of the PSRO budget.

It is also important to investigate which types of patients within the Medicare and Medicaid patient populations are most affected by review. Is the impact of the program greatest, for example, among the chronically ill, or among those who are receiving relatively minor surgery? Answers to such questions would permit a more efficient allocation of PSRO resources.

How Do PSROs Vary in Operation, and Are Some Methods More Effective than Others? Surprisingly little information is available about variations in PSRO procedures. Little is known, for example, about the various criteria PSROs use in focusing review. The absence of information about current review procedures and their relative effectiveness retards improvement of the program.

CHAPTER I. PSROs AND THE CONTROL OF MEDICAL-CARE USE

Since the enactment of Medicare and Medicaid in the mid-1960s, federal expenditures for personal health care have grown rapidly, from $3.8 billion in 1965 to $53.3 billion in 1979. The Congress has frequently expressed concern about both the costs of federally financed health benefits and the quality of services being purchased.[1]

The Professional Standards Review Organization (PSRO) program, established by the Social Security Amendments of 1972,[2] is one of several legislative efforts to meet these concerns. The PSRO program is a type of peer review intended to "promote the effective, efficient, and economical delivery of health care services of proper quality for which payment may be made under the [Social Security] Act." These payments are principally for Medicare and Medicaid beneficiaries. "Proper quality" services are defined as those that meet the following criteria:

- o They conform to appropriate professional standards;
- o They are provided only when deemed medically necessary;
- o They are provided in the most economical but nonetheless appropriate setting--for example, on an ambulatory rather than an inpatient basis, if appropriate.

Although the PSRO program has a broad range of goals--that is, controlling both the use and the quality of diverse health-care services--it has in practice emphasized primarily the control of inpatient use of short-stay hospitals. Activities designed to restrain hospitalization were implemented most rapidly[3] and still

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1. See, for example, Medicare and Medicaid: Problems, Issues, and Alternatives, prepared by the staff of the Senate Committee on Finance, 91:1 (1969).

2. Public Law 92-603.

3. Health Care Financing Administration, Professional Standards Review Organization 1979 Program Evaluation, p. 108.

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consume over two-thirds of the program's budget (the balance going to support quality-assurance activities and review of other types of health care).[4]

In June, 1979, the Congressional Budget Office (CBO) evaluated the PSRO program as a means of controlling hospital utilization and associated health-care costs.[5] At that time, the most recent available data covered the program's impact in 1977.[6] Since the publication of the 1979 evaluation, more recent data have become available permitting assessments of the program's effects in 1978. The analyses reported in this paper use the 1978 data and employ somewhat more refined estimating techniques.

This analysis, like the earlier CBO report, focuses entirely on the utilization- and cost-control aspects of the program. PSRO effects on quality are not considered, nor are the costs associated with quality-assurance activities. The quality-assurance and utilization-control components of the program are largely distinct, and the success of one need not depend on the success--or

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4. Budget of the U.S. Government for Fiscal Year 1981, March 1980 revision.

5. Congressional Budget Office, The Effect of PSROs on Health Care Costs: Current Findings and Future Evaluations (June, 1979).

6. The basic findings of the earlier CBO evaluation were that:

   - o PSRO review reduced Medicare hospital utilization by 2 percent;
   - o There were no reliable data concerning the program's effects on Medicaid use;
   - o PSRO review transfered costs to private patients, raising the cost of their care;
   - o Considering the increased costs to private patients as well as savings to Medicare, the total savings generated by PSRO review of Medicare patients were about 30 percent less than the cost of the review iteself.

   (See Appendix A for a summary of the earlier CBO report.)

even the presence--of the other. This makes it feasible and useful to evaluate the two components separately.

The basic questions considered in this paper, then, are two: do PSROs reduce inpatient hospital care, and do they save money?

PLAN OF THE PAPER

The remainder of this chapter is devoted to background information on PSROs. It outlines why regulating medical-care practice may be desirable, and it describes those regulatory policies that preceded PSROs and those that continue to the present. The chapter also sketches the organization of the PSRO program.

Chapter II analyzes the PSRO program's effects on Medicare hospital use and costs. The savings from PSRO-induced changes in Medicare hospital use are compared with the cost of running the program. The program's net impact on the federal budget is assessed, as is its effect on health-care spending by society as a whole. Chapter III discusses policy issues and questions for future research that are raised by the evaluation results.

MEDICAL-CARE REVIEW AND THE NEED FOR REGULATION

The U.S. medical-care system is currently subject to various types of regulation. These include controls on prices (hospital rate setting, fee schedules for reimbursement of physicians), constraints on the construction of new facilities and the introduction of new services (health planning activities), standards of competence for the practitioners and providers of health-care services (licensing, accreditation), and limitations on the ways medical care is given. The PSRO program, which is an example of the last type of regulation, is designed to regulate the provision of medical care to most beneficiaries of federal programs that finance health services.

The regulation of medical-care practice is intended to alter the array of medical services delivered to patients. Given a standard of desirable care, an existing practice may be deemed inappropriate for one or more of the following five reasons:

1. Additional services could significantly improve the patient's prognosis;

2. A different course of treatment could improve the prognosis;

3. Some services are deemed "unnecessary" because they offer little if any improvement in prognosis;

4. Some services actually risk harming the patient while offering little medical benefit; and

5. Services delivered in a lower-cost setting (such as in a nursing facility or at home) could be as effective as those delivered in a hospital.

Regulation has the potential of containing costs if conditions 3, 4, or 5 exist, and sometimes if conditions 1 or 2 exist. It has the potential of improving quality if conditions 1, 2 or 4 exist.

Inappropriate medical care may exist in an unregulated system for a number of reasons. Because patients usually lack the expertise to discern whether care is unnecessary and/or of poor quality, they depend on physicians to act as advisors in the purchase of medical services. Furthermore, convention among physicians discourages doctors from assisting patients in judging other doctors' work. Thus, physicians are responsible for the appropriateness of their own services. A number of factors, however, impede their carrying out this responsibility.

Medical information diffuses slowly and unevenly. As a result, some techniques are used too long and others are not used soon enough. Physicians may be too busy to keep up with new developments. Furthermore, much of the information that is most readily available to them is oriented toward promoting certain types of new techniques--for example, use of new drugs.

Financial incentives encourage the delivery of unnecessary services. Under the fee-for-service mode of payment, the physician usually gains financially from providing more services. In addition, patients' health insurance lessens their reluctance to use more services because of considerations of cost, and similarly, it lessens physicians' incentives to choose the most economical setting for treatment.

Unnecessary services may also be induced by physicians' fears of malpractice claims. With patients well insured and technically ignorant, physicians are free to practice "defensive medicine,"

which involves--among other things--more diagnostic testing than is called for by best medical judgment.

A common response to problems of inappropriate care is to review the course of treatment prescribed by physicians. This method of regulating medical practice is usually called "utilization review" because it monitors patients' use of medical care. Utilization review activities vary widely in terms of the following characteristics:

- Who does the reviewing?
- At what stage of treatment is the review conducted?
- What decisions about health-care use does the review focus on?
- What is the extent and direction of "focusing"--that is, to what degree is review focused on specific diagnoses, providers of care, or treatments?
- If inappropriate care is found, what sanctions are applied?

The choice of the reviewer usually is between review by peers or by a third-party payer (usually an insurance company). Under peer review, a group of local physicians is ultimately responsible for review decisions. When review is conducted by a third party, it is that organization, whether governmental or private, that makes the ultimate decisions. The decision of whether or not to use peer review should not be confused with whether or not physicians actually perform the review. Most peer review organizations use nonphysicians for screening in the early stages of review, and third-party payers may employ physicians in the review process. The difference between peer and third-party review is which segment of the medical-care system sets the policies and the objectives being pursued.

Review activities vary according to the stage of treatment at which the review is conducted. In the case of hospital use, the review can be conducted on a prospective basis (before the patient's admission) for nonemergency cases, on a concurrent basis (during the hospital stay), or retrospectively (after discharge).

Review can also focus on many different decisions. The general course of treatment may be questioned--for example, is

surgery necessary? Alternatively, the course of treatment may not be reviewed but the appropriateness of the setting questioned. Should this patient be hospitalized or should he be treated as an outpatient? Is the length of an inpatient's stay in the hospital too long?

Another variation in review systems is the extent to which review is "focused." Review can be focused on certain physicians or hospitals, or on certain diagnoses--for example, acute myocardial infarction (heart attack). Similarly, certain procedures, such as tonsilectomies and hysterectomies, can be examined. Cost effectiveness may be increased by focusing on a small number of utilization decisions, rather than by reviewing all of them.

The final dimension is the nature of sanctions. Denial of reimbursement to a physician or hospital is the most common sanction available. Some reviewers use sanctions only rarely, preferring to induce compliance through education.

The federal government has been involved in health-care utilization review for some time. Since the inception of the Medicare program in 1965, utilization review by hospitals has been a condition of participation. Participation in Medicaid was made contingent upon utilization review in 1967. Medicare and Medicaid regulations permitted wide latitude in the manner of review, creating difficulties in specifying the nature and extent of review activity in the typical hospital. There is evidence, however, that some hospitals conducted review programs similar to PSRO review.

A newly emerging type of utilization review is the solicitation of second opinions about the appropriateness of surgery. Unlike formal review, the test of the appropriateness of a physician's surgical recommendation is whether it agrees with the opinion of a second physician. When the second physician disagrees, the patient then has to decide whether to proceed with the surgery.

PROFESSIONAL STANDARDS REVIEW ORGANIZATIONS

As stated earlier, the PSRO program is intended to lower health-care costs and assure the quality of care for beneficiaries of health programs under the Social Security Act through utilization review. PSRO review is distinguished from other utilization review systems by its administrative structure, by the sanctions

it can bring to bear, and in many cases, by the nature of the review process itself.

Ultimately, PSROs are intended to review the full range of health-care services delivered under the Social Security Act. To date, however, PSROs have been concerned primarily with assessing the appropriateness of admissions to and lengths of stay in short-stay general hospitals. The extension of PSRO review to other aspects of health care--specifically ambulatory care, long-term care, and ancillary services (that is, laboratory tests, x-rays, and so forth)--has been very limited and is at present progressing slowly, largely because of budgetary constraints.

Implementation of PSRO review in short-stay hospitals has been gradual. In mid-1978, when the evaluation data analyzed here were collected, 118 of the total 203 PSRO areas (58 percent) had an active PSRO that had instituted review in at least one hospital. By the fall of 1979, that percentage had increased to 88 percent, and recently the figure has been about 95 percent. At the same time, active PSROs have been expanding their activities to cover a larger percentage of hospitals in their areas. In 1978, under half of all federal (Medicare and Medicaid) admissions were to hospitals where PSRO review had begun; in 1980, that figure had reached two-thirds, and the Health Care Financing Administration (HCFA) hopes to exceed 90 percent in 1981.

The expansion of PSRO activities since 1978 has not been accompanied by a comparable increase in program funding (see Table 1). Total program funding remained almost constant in current dollars from fiscal year 1978 through fiscal year 1980, indicating a substantial decline if inflation is taken into account. Thus the expansion of PSRO activities has required that a shrinking amount of funds be spread over an increasing number of PSROs and hospitals.

PSROs are local--or, in some sparsely populated areas, statewide--organizations, but the PSRO system involves state and national entities as well. As required by the statute, the Secretary of Health and Human Services (HHS) divided the nation into 203 "PSRO areas." In each area, physician organizations could

TABLE 1. PSRO PROGRAM FUNDING, FISCAL YEARS 1973-1981 (in Millions of Dollars)

Fiscal Years	PSRO Funding[a]
1973	4.5
1974	32.9
1975	36.2
1976	47.6
Transitional Quarter	12.0
1977	103.0
1978	147.2
1979	149.9
1980	155.2
1981	173.7

a. Figures for fiscal years 1973 through 1979 are from HCFA, PSRO 1979 Program Evaluation, p. 152.

apply to HHS for designation as that area's PSRO.[7] All physicians in the area are free to join the local PSRO after it has been selected, and the majority of physicians in areas with PSROs are members. After an initial planning period, the PSRO is responsible for reviewing the appropriateness of health care provided under the Social Security Act in its area; the PSRO may

7. Although nonphysician organizations may also apply for PSRO status, the law prohibits the Secretary of HHS from designating such a group as a PSRO unless no qualified physician organization in the area has applied. No nonphysician organization has ever applied.

devise it own criteria to use in that review.[8] PSROs are advised by State Professional Standards Review Councils (in states with three or more PSROs) and Advisory Groups composed of nonphysician health-care practitioners and representatives of health facilities. In addition, the Secretary of HHS is advised by a National Professional Standards Review Council consisting of physicians of recognized standing in the appraisal of medical practice. The National Council also provides technical assistance and information to PSROs and develops regional standards to be used by the PSROs.

All PSRO activities are federally financed even though they are largely locally planned and administered. PSROs are financed by both general revenues and the Hospital Insurance Trust Fund, reflecting their responsibility to review both Medicaid patients (whose care is funded by direct appropriation) and Medicare patients (whose care is financed through the Trust Fund).

Within guidelines established by the law, PSROs have some flexibility in determining how to review short-term hospital inpatient services. All PSROs, however, have adopted a plan suggested by HHS. This plan calls for three principal types of review activity:

- o Concurrent review,
- o Medical-care evaluations, and
- o Profile analysis.[9]

These activities are described in the remaining portion of this chapter.

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8. In practice, most PSRO standards are based not on purely local criteria but on the American Medical Association "criteria set" and the Professional Activity Study regional length-of-stay norms. See Health Services Administration, Office of Planning, Evaluation, and Legislation (OPEL), PSRO: An Initial Evaluation of the Professional Standards Review Organization (February 1978) Vol. I, p. 4.

9. OPEL, PSRO, Vol I. p. 49ff.

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Concurrent Review

The activity that has been most fully implemented, and the one that is the primary focus of PSRO activities at present, is concurrent review. Concurrent review has two components: review at admission and periodic re-reviews (continued-stay reviews). Admission review, which generally takes place within 24 hours of a patient's admission, entails certifying that the admission is justified and setting a target date for the first continued-stay review.[10] Continued-stay reviews are conducted to determine the necessity of continued inpatient care. At both stages, concurrent review focuses primarily on whether the hospital is the appropriate setting for care. Assurance of quality is not an explicit aim of concurrent review, but quality may be affected by changes in utilization recommended by the PSRO reviewers.

PSROs carry out concurrent review in a variety of ways. Generally, initial screening is conducted by nonphysician "review coordinators." In many instances these are nurses, but they may also be social workers or other types of personnel. Since only physicians are empowered to reject an admission or a continuation of stay, questionable cases are referred to a physician advisor. Denials--that is, determinations that admission or continued stays are inappropriate--are communicated to patients and their attending physicians. Patients, providers (hospitals), and practitioners (physicians) have the right to appeal at the local, state, and national levels.

The direct effect of a PSRO denial is that, after a short grace period, reimbursement by Medicaid or Medicare for continued hospital care is prohibited.[11] PSROs can also recommend to HHS that stronger sanctions be imposed on providers and practitioners. Under recently promulgated regulations, PSROs can recommend that providers or practitioners be excluded from the

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10. In a few exceptional cases, pre-admission review is substituted for the normal post-admission review.

11. At present, the statute (P.L. 95-142) mandates a single day's grace for Medicare patients and gives the PSRO the option of allowing up to two additional days. Medicaid patients, on the other hand, are not allowed any grace days in some states.

Medicare and Medicaid programs or that fines of up to $5,000 be levied to recoup reimbursement for inappropriate care.[12]

The persons actually carrying out concurrent review may be either hospital employees or members of the PSRO's own staff. The law requires that a PSRO delegate responsibility for review to hospitals capable of performing it. In June 1979, 78 percent of all hospitals under review were performing review themselves under contract from local PSROs.[13]

At this time, it is estimated that less than half of Medicare and Medicaid patients admitted to hospitals under PSRO review actually undergo concurrent review. This stands in contrast to the first years of the program--including 1978, when the data analyzed here were collected--when all such patients were reviewed. As noted earlier, the PSRO budget has not kept pace with the program's expansion since 1978, and the program has been under increasing financial pressure. As a result, full concurrent review of all cases became financially infeasible for most PSROs. One response was to institute "focused review," a system in which only some cases are actually reviewed. The ideal focusing system would select for review those types of cases where overutilization has been most severe and where the impact of review would be expected to be greatest.

As focusing has progressed, it has become increasingly unclear what review activities are actually being conducted. There are no firm figures, for example, on the percentage of patients in active PSRO areas whose cases are actually reviewed. Figures ranging from 20 to 50 percent have been offered by different PSRO and HCFA officials. There are no data on the criteria used to focus; for example, PSROs could select cases to review on the basis of diagnosis, age, or the physician or hospital involved

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12. These regulations (42 CFR Parts 455 and 474), promulgated on February 20, 1980, implemented for the first time the sanction authority conferred by the PSRO statute (specifically, Section 1160). Previously, PSROs had made use of somewhat more limited authority to recommend exclusion under section 1862(d) of the Medicare title.

13. HCFA, PSRO 1979 Evaluation, p. 156.

in treatment. Some PSROs have abandoned concurrent review entirely in some hospitals, replacing it with retrospective monitoring of utilization.

Medical-Care Evaluations

The second type of activity conducted by PSROs is medical-care evaluations, which are retrospective studies of medical-care practices in a particular area. They are designed to uncover poor quality and ineffective administration. Results of medical-care evaluation studies may be used to make administrative changes to correct deficiencies, set standards for concurrent review, and focus concurrent review activities.

Profile Analysis

The least developed activity is profile analysis. In this activity, statistical analyses of large numbers of PSRO-reviewed episodes are used to discern patterns of care. The object is to identify areas of health care in which utilization practices may be inappropriate in order to focus concurrent review activities and to suggest topics for medical-care evaluation studies.

CHAPTER II. THE EFFECT OF PSROs ON UTILIZATION AND COSTS

The analysis in this report suggests that a fully implemented program of unfocused PSRO review would reduce Medicare days of hospital care by 1.5 percent.[1] The impact of the current PSRO system, which is almost completely implemented (about 95 percent of all PSRO areas have active PSROs) but which is so focused that a majority of cases are not reviewed, is probably less than 1.5 percent. As yet, however, there are no data indicating how much less. Information about the program's effect on Medicaid utilization is also still lacking.

Although the program has had some success in curbing Medicare utilization, it has not been successful in lowering costs. The gross savings to society as a whole resulting from PSRO-generated changes in Medicare use are about 60 percent less than the total cost of relevant PSRO activities. A somewhat more favorable estimate is obtained if only government savings are considered, rather than total societal savings. Similarly, considering only the "incremental" cost of replacing pre-PSRO review with PSRO review, rather than the total cost of the latter, produces a more favorable estimate. Even the most positive estimates, however, show gross savings that are only slightly in excess of relevant program costs. The most favorable estimate reported below--a comparison of savings to the government with incremental program costs--indicates a net budgetary savings equal to 20 percent of relevant PSRO program costs. This savings amounted to about $18 million in fiscal year 1980--less than one-tenth of one percent of Medicare Part A (hospital insurance) outlays.

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1. The comparable estimate in the earlier CBO study was a 2.0 percent decline in Medicare utilization. The somewhat less optimistic estimates in the present report reflect refinements in the analytical methods used rather than a deterioration in the program's performance. When the newer methods were applied to the 1977 data (used in the earlier report), the estimated program effect on utilization was not substantially different from the 1.5 percent figure yielded by the 1978 data.

MEASURING THE COSTS AND EFFECTS OF PSRO REVIEW

The costs of PSROs and the savings they generate can be tabulated in many different ways, and the existing assessments of the program confront the reader with a thicket of confusing terminology. This section describes the issues involved in accounting for these costs and savings and presents a standard terminology that is used throughout this report.

Total Versus Incremental Costs

The initiation of PSRO review in a hospital replaces one form of utilization review with another. Hospitals participating in the Medicare and Medicaid programs have been required to conduct utilization reviews since the 1960s, but those review activities are discontinued when PSRO review is instituted. In this analysis, "total cost" refers to all the outlays required to operate the utilization-control activities of the PSRO program (but not the cost of the entire program), while "incremental cost" refers only to the increase in outlays required to replace pre-existing utilization review with PSRO review.

Total Versus Incremental Benefits

Precisely the same distinction is applied to the benefits of the PSRO program that are analyzed here, that is, changes in Medicare utilization and the concomitant savings. Since PSRO review has always been a replacement for a pre-existing system of review, however, it has never been possible to assess the impact of instituting PSRO review in an area with no pre-existing review. Rather, all evaluations of the program have been limited to assessing the incremental impact of PSRO review on utilization, above and beyond whatever effects the pre-existing review system had.

Since total benefits of the program have never been assessed directly, the terms "benefits" and "savings" are always used to mean incremental benefits and incremental savings unless explicitly noted otherwise.[2]

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2. Savings resulting from PSRO review are adjusted throughout this analysis (as well as in the HCFA and earlier CBO evaluations) by subtracting the costs of compensatory increases in ambulatory and long-term care. Patients whose

(Continued)

Resource Savings, Reimbursement Savings, and Transferred Costs

"Resource savings" refers to the change in the total societal expenditure of resources for health care stemming from PSRO-induced changes in utilization. It includes expenditures by both government and private parties. "Reimbursement savings" refers to changes in government outlays (usually federal) resulting from such changes.

The difference between resource savings and reimbursement savings arises because, in the short term, roughly 60 percent of the costs of a day of hospitalization are fixed and 40 percent are variable. That is, if utilization decreases by a given amount (say 10 percent), costs will go down only 40 percent as much (4 percent). The remaining 60 percent of the costs of unused days remain and must be absorbed by someone.[3] If the decline in utilization is restricted to Medicare patients, the Medicare reimbursement formula reapportions the 60 percent of costs that are fixed among both Medicare and non-Medicare patients, with the latter group bearing most of the burden. In other words, some of the costs associated with days of care formerly consumed by Medicare patients are transferred to private patients and will generally appear as higher charges to them. (Conversely, if utilization declines among private patients, some fixed costs are transferred to Medicare patients.)

These transferred costs are the difference between reimbursement savings and resource savings. While this transfer does not decrease the total expenditure of resources, it does reduce federal Medicare reimbursement payments.

The June 1979 CBO evaluation referred to resource savings simply as "savings." In contrast, the Health Care Finance

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2. (Continued)
hospitalizations are eliminated or shortened by PSROs are assumed to obtain in another setting a portion of the services they would have obtained in the hospital. The cost of doing so is subtracted from the value of days saved to obtain gross savings.

3. Over the long term, fixed costs become variable. That is, as staffing levels change, debts are retired, and so on, costs that are fixed in the short term will be eliminated.

Administration (HCFA) evaluations have generally used the term "savings" to refer to reimbursement savings.

Net Versus Gross Savings

Both resource and reimbursement savings can be either gross or net. Gross savings are simply changes in resources or in reimbursements expended. Net savings are gross savings minus program costs.

Confusion sometimes arises when translating a savings-to-cost (or benefit/cost) ratio into gross and net savings. All such figures, however, are ratios of gross savings to program costs. For example, a savings-to-cost ratio of 1.2-to-1 means that gross savings amount to $1.20 for every $1.00 of costs, which corresponds to net savings of $0.20.

Calculating a Ratio of Savings-to-Cost

Savings-to-cost ratios can be calculated with any combination of reimbursement or resource savings and total or incremental costs. All four possible combinations have been used in various assessments of the program, and there has been considerable discussion about which is the most appropriate. Since different combinations of savings and costs can be relevant, depending on the policy question being addressed, this chapter presents alternative savings-to-cost estimates based on all combinations of resource and reimbursement savings and total and incremental costs.[4] The merits and disadvantages of the various approaches are also discussed.

THE EFFECT OF PSROs ON MEDICARE UTILIZATION

The impact of PSROs on Medicare utilization in 1978 (the year in which the data used in this report were collected) was assessed

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4. The 1979 CBO report emphasized total costs and resource savings. In contrast, the 1978 and 1979 HCFA evaluations of the program (HCFA, Professional Standards Review Organization 1978 Program Evaluation, and HCFA, 1979 PSRO Program Evaluation) focused on total costs and reimbursement savings. Others in HCFA have suggested that incremental costs are the appropriate measure.

by methods similar to those described in detail in the June 1979 report.[5] "Inactive" PSRO areas, in which PSRO review had not yet been started, again served as a comparison group. Of the 93 comparison areas in the June 1979 report, 81 remained inactive as of July 1, 1978, and were used as comparison areas in the present report.[6] Days of hospital care per 1,000 Medicare enrollees in 1978 in both active PSRO and comparison areas were adjusted for the effects of 1974 (pre-PSRO) utilization rates and eleven other variables (such as the supply of hospital beds and the number of physicians per 1,000 population; see Appendix B for details). The difference between these adjusted 1978 utilization rates in active and comparison areas provided the measure of PSRO impact.

Although this analysis does suggest that PSRO review reduced Medicare utilization slightly, the evidence is somewhat tenuous. This year's analysis, like last year's, is subject to a major qualification (described in detail in the earlier CBO report on pages 17 to 21). The separation of PSRO areas into active and inactive groups was not a random process but was based on the initiatives of local physician organizations. Accordingly, the active PSROs may have differed from the comparison areas in ways not adequately handled in the analysis.

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5. This analysis reflects three technical changes made since the June 1979 report:

   - o Minor changes were made in the specification of the regression model;
   - o Effects were analyzed separately within each of four Census regions and then pooled across regions; and
   - o Interaction terms (except for PSRO by region, where appropriate) were excluded, since they were nonsignificant and had little explanatory power.

6. The data were also analyzed using as comparison areas only those PSROs that remained inactive through all of calendar year 1978. The results were not appreciably different from those reported here.

In addition to these major qualifications, two further caveats must be stressed. First, in the more recent data, the PSRO impact fails to meet conventional standards of statistical significance and only barely reaches the range generally called "marginal." In concrete terms, even if PSROs had no real effect, one would observe an apparent "effect" as large as, or larger than, that found in this year's analysis in roughly one out of every ten analyses just because of chance variation in the data. Second, the data show patterns that are difficult to explain and throw the basic findings into some doubt. The days of hospitalization saved do not increase as PSROs extend their review activities to cover a larger proportion of hospitals in their areas. Moreover, there are striking but largely unexplained regional variations in the effects of PSRO review.

Details of the analysis of the 1978 data (including the qualifications described above) and some comparisons with 1977 program performance are described below.

The Effect of Additional Experience on PSRO Effectiveness

Over the period of time for which data are available, PSROs on average did not become appreciably more effective as they gained experience. (There are as yet no data with which to assess changes in the program's performance since 1978). The June 1979 report noted that as of 1977, "There [was] no evidence that PSROs grow more effective with time (within the range of zero to three years of experience).[7] The more recent data bear out this conclusion. They fail to show any appreciable improvement in the program's performance following the additional year of program activity.[8] This lack of improvement cannot be attributed to the addition of 12 new PSROs between 1977 and 1978. Even with the new PSROs included, the average duration of PSRO activity in the active areas increased by 61 percent, from 15.5 months in 1977 to 24.9 months in 1978. Moreover, excluding the new PSROs from the analysis does not materially affect the conclusion that the program's impact has not changed.

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7. CBO, The Effect of PSROs, p. 31.

8. The change in the program's impact was assessed by reanalyzing the 1977 data using the same methods used with the 1978 data.

The lack of improvement in PSRO performance is particularly puzzling because, as PSROs have gained experience, they have extended their activities to cover a larger proportion of the hospitals in their regions. Unless PSRO review is ineffective in the hospitals where review is started later, or unless the impact of review in the hospitals where review was first instituted deteriorates as PSROs expand their activities, extending review to additional hospitals should increase substantially the number of days of hospitalization saved in each PSRO area.

Regional Differences in PSRO Impact

The 1979 CBO report noted that the 1977 data showed striking regional differences in the program's impact. The 1978 data show similar patterns, even after adjusting for the effect of hospital rate-setting commissions in some areas. The utilization changes associated with PSRO review ranged from a large reduction in the Northeast to a smaller but still appreciable increase in the South. The figures are shown in Table 2.

TABLE 2. PSRO IMPACT BY REGION, 1978

Region	Percent Change in Hospital Days[a]	Statistically Significant[b]
Northeast	-4.8	Yes
North Central	-2.1	Yes
West	-1.4	No
South	+1.9[c]	No

a. Per 1,000 Medicare enrollees.

b. p less than .05.

c. The 1980 HCFA evaluation reported a 3.7 percent increase in the South. The HCFA figure (for that region only) is not adjusted for the effects of hospital rate-setting commissions.

These regional differences are difficult to interpret. As noted in the earlier CBO report, geographic region is important not in itself, but rather as a proxy for variables that are not included in the model. Because the PSRO impact varies so markedly from region to region, it is important to know what those omitted variables are. In addition to the variables already in the model (see Appendix B), what characteristics of the North Central region, or of PSROs in that region, account for a program effect less than half of that in the Northeast? The negative impact of the program in the South (which is larger than the average beneficial impact in the nation as a whole) is even more difficult to explain.

If these regional differences in program impact do not reflect some real but unmeasured differences between regions or their PSROs, they must be due to chance variations in the data or to selection bias.[9] As explained in the next section, the estimate of the impact of a nationally implemented program will differ, depending on which of these explanations is correct.

Estimating the Impact of a Nationally Implemented PSRO Program

As noted in Chapter I, implementation of PSRO review of hospital utilization is nearing completion. Almost all PSRO areas have active PSROs at present. In order to make this evaluation of the 1978 data germane to the decisions now before the Congress, it is necessary to make the results as applicable as possible to the present, nearly fully implemented program.

Extrapolating to a Fully Implemented Program in 1978. In principle it is straightforward to estimate what the impact of a fully implemented program would have been in 1978. The analytical procedure used by both CBO and HCFA is designed to do precisely that. It yields an estimated effect of an "average" PSRO, after adjusting for differences between the active and inactive areas.

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9. That is, the areas where physicians' organizations first established PSROs may have differed from region to region. For example, perhaps some of the first Southern PSROs were set up in areas where utilization was rising--quite apart from any effects of the PSROs themselves--while some of the first PSROs in the North were established in areas where utilization was declining (relative to comparison areas). For more discussion of selection bias, see CBO, The Effects of PSROs, pp. 17-21.

The percent change in utilization caused by an average PSRO--adjusted in that fashion--is equivalent to an estimate of the percent change brought about by a fully implemented program in 1978.[10]

An ambiguity arises, however, because of the pattern of regional differences discussed in the preceding section. As shown in Table 3, the four regions differed in 1978 not only in the effectiveness of their PSRO programs, but also in the degree of program implementation (that is, the percentage of PSRO areas in each region that had active PSROs). In the Northeast, where the average PSRO was far more effective than in any other region, very few PSRO areas remained inactive, whereas in the South, where the average PSRO seemed to increase utilization, the program remained

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10. One important qualification is needed: it is possible that the program would have a different impact when it started in areas that were inactive in 1978 than it had had in those that were already active at that time. There is, however, no persuasive evidence that such a difference would occur.

    To the extent that differences between PSROs and their contexts were measured and included in the analysis, the analysis provided a test of whether one should expect different program effects in different types of PSROs or areas. (Technically, this was tested by a set of treatment-by-covariate interactions.) In general, the analysis yielded little evidence of predictable differences in program impact. It is possible, however, that some characteristics of PSROs or their settings that were not included in the analysis might have indicated such a differential program impact. Nonetheless, in the absence of information about such a characteristic, the estimate of the program's impact provided by this analysis remains the best available estimate of the effect of a fully implemented PSRO program.

    The omitted variable would have to have no appreciable effect on the estimated level of utilization in the absence of a PSRO, but a sizable effect on the estimate of the program's effect in different PSRO areas. In technical terms, this corresponds to a near-zero main effect but a sizable treatment-by-omitted-variable interaction. If the main effect were not near zero, the estimated program effect would be biased; that is, the omission of the variable in question would threaten internal as well as external validity.

TABLE 3. REGIONAL DIFFERENCES IN PROGRAM IMPACT AND DEGREE OF PROGRAM IMPLEMENTATION, 1978

Region	Percent Change in Hospital Days[a]	Percent Implementation[b]
Northeast	-4.8%	83.3
North Central	-2.1	59.9
West	-1.4	75.9
South	+1.9	44.4

a. Per 1,000 Medicare enrollees. This figure is equivalent to the impact of the average PSRO in each region and is unaffected by the degree of implementation as measured here.

b. Percent of Medicare enrollees residing in active PSRO areas, July 1, 1978.

less than half implemented. Implementation was also less complete in the North Central and Western regions. Thus the PSROs that have become active since these data were collected have been drawn disproportionately from areas where the effect of the program has been relatively weak or even negative.

What should be assumed about the effectiveness of these new PSROs? If the regional discrepancies in observed program impact are caused by some real underlying differences between the regions or their PSROs, the best estimate for any new PSRO is the observed average effect in that region. If, for example, there is some real difference between the South and the Northeast that accounts for the discrepant program impacts in the two regions, then the best estimate of the expected impact of a new PSRO in the Northeast is the 4.8 percent decrease already observed in that region, while a new PSRO in the South would be expected to produce a 1.9 percent increase in utilization. If, on the other hand, the regional disparities in program impact are caused by selection bias and chance factors, the best estimate of the expected impact

of a new PSRO--regardless of the region it is in--is the average observed effect in the nation as a whole.[11]

Because of the sizable magnitude and statistical significance of the observed regional disparities in program impact, CBO assumed that they reflect real underlying regional differences, and the estimated 1.5 percent decrease in Medicare utilization therefore assumes that those regional discrepancies in program impact have persisted. Given the lack of any convincing explanation of what the relevant underlying regional differences might be, however, a strong argument can be made for assuming that the disparities reflect only selection bias or chance factors. If that were the case, the best estimate of the impact of a fully implemented program would be the observed national average effect, based on a single national regression analysis. Using this alternative assumption and method, the overall estimated impact of the program would be smaller--roughly a 1.2 percent decrease in utilization. (All of the savings-to-cost ratios reported below would also be reduced by about 17 percent.)[12]

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11. An example will help to make this statistical point clearer. Suppose that two individuals--one aged 20 and the other aged 40--apply for identical term life insurance policies. The insurance company responds that the older person must pay more, since their experience has been that 40-year-olds are more likely to die over the course of the contract than are 20-year-olds. Few would contest their claim, since it is apparent that their experience reflects real age differences in mortality rates. But suppose that two individuals who are both 40 years old apply, and the company wants one to pay a higher premium based on the color of his house. Their experience has been that people in blue houses have higher mortality rates than people in yellow houses. Most consumers would argue that the company's experience with house colors was chance, that no real connection exists between house color and mortality, and that both should pay the same rate. The question is whether the observed regional differences in PSRO impact are analogous to age or to house color.

12. Unlike the figures given above, the estimate of impact provided in the most recent HCFA evaluation (a 1.7 percent decrease in utilization) was designed to measure the effect of the program at the degree of implementation that had been reached in 1978. It would not be appropriate to use the 1.7

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Generalizing from 1978 to 1980. The technique described above estimates the program's impact in 1978 and adjusts that estimate to account for increased program implementation between 1978 and 1980. Because of a lack of data, however, it is not feasible to adjust the estimates to take into account changes in the program since 1978 other than increased implementation.

Foremost among these other changes has been the focusing of review. Since focusing had not begun in 1978, these data cannot provide any indication of its effect. Focusing has probably decreased the effectiveness of review, but the extent of the change is unknown.[13] In particular, it is not known whether focusing reduces effectiveness more or less than it reduces costs.

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12. (Continued)
figure as an estimate of the impact of a fully implemented program, regardless of the assumptions made about the nature of the regional disparities in impact.

13. Focused review is likely to be as effective as unfocused review only if PSROs are 100 percent effective in selecting the right cases to review—that is, excluding from review only cases in which review would be entirely superflous. It would be difficult to approach this optimum even with perfect information, and it is clear that many PSROs were compelled to decide how to focus without the advantage of adequate information. (A recent statement by Dr. Mark Chassin, Acting Deputy Director of the Office of Professional Standards Review Organizations, noted this. "The process of focusing should involve first the review of some set of information . . . that identifies current problem areas . . . . Unfortunately, most PSROs did not have the luxury of focusing in this way. Rather, they were forced by budgeting necessity to make arbitrary decisions in designing their focusing systems . . . . We have a considerable distance to travel before PSROs . . . make the fullest possible use of our data. At this point, let me say that observing how far we have to go should not obscure how far we have come." [Statement before the National Professional Standards Review Council, March 10, 1980.])

Moreover, a highly focused system might lose its deterrent effect, since the odds that any one case would be reviewed
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The Impact of PSROs on Number of Admissions and Average Length of Stay

PSROs can affect hospital use in two ways: by preventing admissions or by shortening lengths of stay. The 1978 data suggest that roughly 90 percent of their effect stems from the latter.[14] This finding is important in estimating the savings generated by the program. Since consumption of ancillary services is generally highest at the beginning of a hospital stay, days saved at the ends of stays will generally be less costly than days saved through the elimination of admissions. Moreover, to the extent that PSROs save days by shortening stays, they should have relatively little impact on Medicare Part B reimbursements, since patients at the end of their stays tend to use fewer Part B services (such as surgery).[15]

The Impact of PSROs on Medicaid Utilization

This evaluation parallels the earlier CBO and HCFA studies in that the benefits and costs described are those related to the review of Medicare utilization only. These costs comprise about 68 percent of the program's expenditures for utilization reduction. This limitation reflects the absence of any reliable data

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13. (Continued)
would be low, and many providers and practitioners would know that they have already been "focused out" and would not be reviewed.

14. To address this issue, the data were reanalyzed to assess the program's impact on average length of stay. PSRO review was found to be associated with a small (roughly 1 percent) reduction in length of stay. This reduction, multipled by the admissions rate, gives the change in days of care attributable to reduction in lengths of stay. This change, divided by the total change in days of care attributable to PSRO review, provides an estimate of the proportion of PSRO impact that comes about through reductions in lengths of stay.

15. Part B--or Supplementary Medical Insurance--pays for physicians' services in and out of hospitals, as well as a variety of outpatient and out-of-hospital medical services.

on the effects of PSRO review on the rate of hospital use by Medicaid patients.

In the absence of such data, it is probably not safe to assume that PSROs have equivalent effects on Medicaid utilization, since the characteristics of the two patient populations are so different.[16] The Medicare population consists entirely of elderly or disabled individuals, many of whom have long-term illnesses or chronic infirmities. Among many such patients, it is often unclear whether hospitalization is required or lower-intensity care (for example, in a skilled nursing facility or at home) might suffice. Furthermore, in the case of infirm Medicare patients, there is often pressure to extend hospitalization if their families have no alternative means of providing continued post-hospital care. In contrast, with the exception of those individuals who receive both Medicare and Medicaid,[17] the Medicaid population consists primarily of children and young women. They are less frequently hospitalized, less likely to have chronic illnesses, and, if hospitalized, have far shorter average lengths of stay than Medicare patients. Moreover, a sizable proportion of hospital admissions in those age groups are for conditions--childbirth is a good example--for which the appropriateness of hospitalization is rarely in doubt. Since Medicaid hospitalizations are less likely to entail extended stays of arguable medical necessity, it is likely that there is less room for PSRO impact on Medicaid admissions.[18]

Do PSRO Activities Affect Utilization by Private Patients?

PSROs could affect private utilization in two different ways even if their review activities were restricted entirely to Medicare and Medicaid patients. PSROs might increase private utilization by means of the "Roemer effect," which is the tendency for

16. For the same general reason, it is risky to extrapolate PSRO performance to review of nonfederal patients.

17. The hospital utilization of individuals receiving both Medicare and Medicaid is included in the Medicare data analyzed in this report.

18. Relevant to this point is the finding in this year's analysis that, among Medicare patients, roughly 90 percent of PSROs' impact in hospital use was through shortened length of stay rather than reduced admission rates.

empty hospital beds to generate demand for their use.[19] That is, beds emptied by PSROs would tend to be filled by additional days of care for private patients. Conversely, PSROs might decrease private utilization through so-called "spillover effects." A spillover would occur if the educational aspects of the PSRO program lead physicians to be more cost-conscious in treating private patients.

The present analysis makes no adjustment for either spillovers or the Roemer effect. In contrast, the June 1979 CBO report lowered the program's savings-to-cost ratio to account for the Roemer effect. Recent research by HCFA, however, while not conclusive, suggests that, on balance, neither Roemer nor spillover effects of any substance have been caused by the PSRO program. If such effects are present, they apparently cancel each other out.

THE EFFECTS OF PSROs ON HEALTH-CARE COSTS

In order to translate the utilization effects described above into monetary savings, it is necessary to decide on the appropriate measure of program cost (total or incremental), find the monetary value of the days of hospitalization that have been saved, and finally compare the savings to the costs.

This section discusses several aspects of the analysis of savings and costs. The arguments in favor of using both total and incremental costs are discussed, and an estimate of incremental cost is presented. Using the benefit-cost ratio in the most recent HCFA evaluation of the program as a starting point, a range of savings-to-cost ratios--using all combinations of total and incremental costs and resource and reimbursement savings--are calculated. Finally, long-term savings are contrasted with short-term savings.

The Appropriateness of Incremental and Total Cost Measures

Whether total or incremental cost is the appropriate measure depends on the options being considered. If the Congress is considering abolishing the PSRO program without removing the

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19. The Roemer effect is explained in detail in CBO, The Effect of PSROs, pp. 36-37.

utilization review requirements in the Medicare and Medicaid statutes, incremental cost would be germane, because pre-PSRO utilization review would again be required. If the Congress is considering eliminating the utilization review requirements as well, total cost would be relevant. If the Congress is considering only changes in the level of PSRO funding, either could be appropriate, depending on whether the number of hospitals under PSRO review would change.

An additional consideration is that the cost and benefit measures used in any instance should ideally be consistent with each other. That is, the program's total effect on utilization should be compared to the program's total cost, while its incremental effect would ideally be compared to its incremental cost.

Unfortunately, a lack of data makes it difficult to draw these ideal comparisons with much confidence. As noted earlier, the available information on the program's effects assesses only its incremental impact, over and above pre-PSRO review. The available data on PSRO program costs, on the other hand, reflect the total cost of operating the program. To derive the missing information--total effects and incremental cost--one would need data on the cost and effects of pre-PSRO review. As Table 4 indicates, however, such data are weak at best.

TABLE 4. QUALITY OF DATA ON PRE-PSRO AND PSRO COSTS AND BENEFITS

	Costs	Benefits (effects on utilization)
Pre-PSRO	poor	no data
PSRO Total	excellent	no data
Incremental PSRO (= total PSRO minus pre-PSRO)	poor	good

Based on the weak data concerning pre-PSRO review costs, both HCFA and CBO have estimated the incremental cost of PSROs. The CBO estimate is described below.

Given the absence of systematic data on the effectiveness of pre-PSRO review, neither HCFA nor CBO has attempted to estimate the PSRO program's total effect. All estimates of the program's effect on utilization, therefore, reflect only the program's incremental impact. It is widely believed--although in the absence of systematic data--that pre-PSRO review was largely ineffective. If so, the estimates of the PSRO program's incremental effect will approximate its total benefit. If, however, pre-PSRO review was more effective than believed, the estimates given in this report (and in the HCFA evaluations) could substantially understate the program's total impact. (Affected would be only those savings-to-cost ratios reflecting total cost; those reflecting incremental cost also reflect incremental effects and would be accurate.)

Estimating the Incremental Cost of the PSRO Program

CBO estimates that, as of 1978, PSRO review was roughly twice as expensive as pre-PSRO utilization review.[20] That is, the incremental cost of PSRO review is about half of the program's total cost. The incremental cost is higher, however, when only the cost to the federal government is considered, because the federal government bears the entire cost of PSRO review of both Medicare and Medicaid patients but only part of the cost of pre-PSRO review of such patients. The incremental cost to the federal government is accordingly probably in the vicinity of 70 percent of total program cost. As explained below, the data on which these estimates are based are weak but are nonetheless the best available.

Data on PSRO Incremental Cost. The available data on the cost of pre-PSRO review--which are essential for estimating PSRO

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20. This estimate is based on the cost of pre-PSRO utilization review (UR) subject to the November 29, 1979 regulations (so-called "new UR;" 45 CFR Part 250). "Old UR"--before those regulations--was appreciably less expensive. All pre-PSRO costs described below also refer to "new UR."

incremental costs--are weak.[21] The lack of adequate estimates of pre-PSRO review costs stems directly from the way in which such costs have been reimbursed. (Pre-PSRO utilization review is still conducted in hospitals in which PSRO review has not started, and it is still reimbursed in the manner described here.) Allowable costs for pre-PSRO utilization review are not distinguished from other hospital costs in determining Medicare reimbursements. Similarly, utilization review costs incurred in reviewing Medicare cases are not differentiated from other utilization review costs.[22] Hospitals have no reason to tabulate utilization review costs separately from other costs, and consequently, Medicare has no data on its reimbursements for utilizaton review.

Because of this lack of information, several volumes of the 1977 Office of Planning, Evaluation, and Legislation (OPEL) report on PSROs were devoted to estimating pre-PSRO utilization review costs.[23] Extensive interviews were conducted with the staffs of a number of hospitals in order to identify what review activities were being conducted and to specify the costs associated with them. Some of the hospitals were in active PSRO areas and were conducting PSRO review, while others were in inactive PSRO areas and were conducting pre-PSRO utilization review. The resulting estimates cannot be considered reliable, however, principally because the number of hospitals providing information on pre-PSRO review costs was too small. Only 23 hospitals in two inactive PSRO areas were examined to obtain an estimate of pre-PSRO review costs. Thus, basing estimates of the national incremental cost of PSRO review on the OPEL figures is risky and potentially misleading. They are the best available data, however, and all current estimates of PSRO incremental costs are based on them.

Estimating PSRO Incremental Costs from the OPEL Data. The OPEL figures suggest that PSRO review is far more expensive than

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21. See, for example, Supplemental Statement by Dr. Clifton Gaus, Review of PSRO Medical Cost Control, Hearings before the Subcommittee on Oversight of the Committee on Ways and Means, 96:1 (1979), Serial 96-36, p. 158.

22. Medicaid Reimbursement Manual, Section 2126, p. 21-15.4.

23. Office of Planning, Evaluation, and Legislation, Health Services Administration, PSRO: An Evaluation of the Professional Standards Review Organization (1977), vols. 8-10.

pre-PSRO review. Using data from all sampled hospitals, the report estimated that PSRO review is about twice as expensive as pre-PSRO review.[24] Using a more carefully matched set of two active and two inactive PSRO areas, PSRO review was found to be about three times as expensive.[25] Since the OPEL study overestimated PSRO operating costs (which inflated the estimate of incremental cost), the best estimate is that the incremental cost of PSRO review is roughly half of total program cost.

As noted earlier, however, the incremental cost of PSRO review is greater than the above estimate if only costs to the federal government are considered. This discrepancy stems from the fact that, while the federal government pays 100 percent of the cost of PSRO review of Medicare patients, it often pays less than the full cost of pre-PSRO Medicare review because of the way the Medicare reimbursement system works. The balance of the cost of pre-PSRO Medicare review is borne by private patients.[26] As a

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24. OPEL, PSRO, vol. 1, p. 136.

25. OPEL, PSRO, vol. 8, p. 116. This comparison should ideally be adjusted in several ways: increased costs associated with greater medical audit activity should be deleted; most of the cost of Medicaid state agency review should be deleted; and the costs of the PSRO-related portion of the Health Standards and Quality Bureau (HSQB) of HHS should be added. Precise figures for these corrections are not available, but the corrected comparison would still show PSRO review to be roughly three times the cost of pre-PSRO utilization review.

26. Utilization review costs are lumped in with other hospital costs under general categories such as "general and overhead" or "administrative costs." Under Medicare reimbursement regulations (see Medicare Reimbursement Manual, Section 2126), these costs are apportioned to Medicare and other payers in proportion to their use of hospital days and services but without regard for which, if any, nonfederal patients are reviewed. Moreover, if only Medicare patients are reviewed, payments to physicians for services on utilization review committees are not reimbursable at all. The federal government therefore pays the full costs of utilization review covering Medicare patients only if all patients are covered and if non-Medicare review costs per admission are as great as Medicare review costs.

result, when PSRO review replaces pre-PSRO review, the government often not only pays the increase in review costs, but also assumes the portion of the cost of Medicare reviews that was absorbed by private patients under pre-PSRO utilization review. (A somewhat similar argument applies to Medicaid review; see footnote 28).

It is probably reasonable to estimate that the incremental cost to the government of the PSRO program is in the range of 65 to 75 percent of total cost. A firmer estimate is not possible because of the lack of information on the average percentage of the cost of pre-PSRO review of Medicare patients borne by the federal government. Given the reimbursement system, however, the proportion of such costs paid by the government could have varied from about 30 to 100 percent from hospital to hospital.[27] If one assumes that, on average, the government's share of pre-PSRO review costs was in the range of 50 to 70 percent, the incremental cost to the government of PSRO Medicare review would fall in the range of 65 to 75 percent.[28]

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27. If only Medicare patients were reviewed in a hospital that has a typical mix of patients, Medicare would pay about 34 percent of the nonphysician costs of utilization review (UR) and none of the physician costs.

    The extent of UR covering nonfederal patients is not precisely known, but evidence indicates that some nonfederal patients are not reviewed and that many are reviewed less intensively than are federal patients. See Paul Gertman, Alan Monheit, Jennifer Anderson, J. Breckinridge Eagle, and Dana Kern Levenson, "Utilization Review in the United States: Results from a 1976-1977 National Survey of Hospitals," supplement to Medical Care, 17 (8) (August 1979).

28. This range is obtained by assuming that the federal share of its UR costs is in the range of 50 to 70 percent and relating that assumption to the OPEL estimate of total incremental costs.

    High estimate: pre-PSRO costs are one-half of PSRO costs; federal share of utilization review equals 50 percent.

    Government incremental cost = 1 - (.50)(.50)
    = 75%

(Continued)

Differences Between CBO and HHS Estimates of PSRO Incremental Cost. Since the summer of 1979, HHS has provided the Congress with a number of estimates indicating that PSRO review is, if anything, less expensive than pre-PSRO review.[29] The CBO and HHS estimates are based on the same OPEL data but use different methods to produce the estimates. CBO compared OPEL's estimates of pre-PSRO and PSRO review costs, while HHS extrapolated OPEL's estimate of pre-PSRO costs to the present and then compared it to the actual PSRO budget.

The principal problem with the HHS method is that it draws an inappropriate comparison: the cost of an unfocused pre-PSRO system is contrasted to the cost of a highly focused PSRO system in which fewer than half of all Medicare and Medicaid admissions are reviewed. There is no corresponding information, however, on the relative effectiveness of unfocused pre-PSRO review and focused PSRO review. All available evaluations contrast the effectiveness of unfocused PSRO and pre-PSRO systems, and the appropriate incremental cost figure would draw the same comparison. That is,

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28. (Continued)
Low estimate: pre-PSRO costs are one-half of PSRO costs; federal share of utilization review equals 70 percent.

Government incremental costs = 1 - (.50)(.70)
= 65%

By coincidence, the federal incremental costs of PSRO review of Medicaid patients is in the same range. In the case of Medicaid patients, it is the states that share in pre-PSRO review costs. The federal portion can be either 75 or 50 percent, depending on whether the states classify their review costs as "skilled professional medical personnel" or as other administrative costs. (It is not known what proportion use the skilled professional medical personnel classification.) The federal incremental costs work out to 75 and 62.5 percent of total PSRO cost, respectively--almost exactly the same as the Medicare estimates above.

29. Memorandum to Daniel Koretz from Dr. Helen Smits, Director of the Health Standards and Quality Bureau (HSQB), August 23, 1979; also supplementary materials on the fiscal year 1981 appropriations estimates presented to the House Committee on Appropriations by Leonard Schaeffer, Administrator of the Health Care Financing Administration, May 1980.

the data show that an unfocused PSRO system reduces Medicare hospital use to a level 1.5 percent below the level expected under unfocused pre-PSRO review. The question to be answered in estimating the program's incremental cost is how much it cost to make precisely that change. The OPEL figures, without further adjustment, are the best available estimate of that cost.[30]

An argument implicit in the HHS approach is that current, focused PSRO review is substantially cheaper than unfocused PSRO review and that this difference should be considered in evaluating the costs and benefits of the current program. There are no data, however, that indicate the costs and benefits of the focused program relative to those of the previous unfocused system. The switch from unfocused to focused review has undoubtedly lowered the program's cost per admission--indeed, lowering costs has been a primary motive in focusing. As noted earlier, however, focusing has probably also lessened the program's effect on utilization, though there are no data available to assess that change. Lacking such data, one can only speculate about whether focusing has reduced costs more or less than benefits.

Recalculation of the PSRO Savings-to-Cost Ratio

Based on the most recent data, CBO estimates that the societal resource savings generated by PSRO review are 60 percent less than the program's total cost. In other words, the savings-to-cost ratio is 0.4-to-1. In contrast, the most recent HCFA evaluation estimated a savings-to-cost ratio of 1.27-to-1, which would indicate that the savings generated exceed costs by 27

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30. The HSQB estimate has technical problems as well. It depends in part on an estimate in the rate of increase in federal (Medicare plus Medicaid) hospital admissions, and the rate used is more than 200 percent too high. (An increase of 27 percent over the four-year period was used in HSQB's calculations, while a more reasonable figure is roughly 8 percent.) It also requires the comparison of PSRO costs assessed by one accounting method with utilization review costs estimated by another. This has the effect of confounding differences in the costs of the two programs with differences in the accuracy and bias of the accounting methods used. In addition, error in the choice of an inflation factor (review costs may not increase at the same rate as the CPI or as total hospital costs, for example) would also contribute falsely to the difference in program costs.

percent.[31] Four factors, described below, contribute to the difference between the HCFA and CBO estimates.

Resource Savings versus Medicare Reimbursement Savings. As noted earlier, whenever Medicare utilization rates go down, some additional costs are transferred to non-Medicare patients. The 1979 HCFA evaluation counted all changes in Medicare reimbursements as program savings, without subtracting that portion of the reimbursement change that was the result of costs transferred to non-Medicare patients.

Adjusting the HCFA estimate to reflect resource savings rather than reimbursement savings reduces benefits by 55 percent. This single correction is sufficient to bring the HCFA estimate of savings well below their estimate of costs (yielding a savings-to-cost ratio of 0.6-to-1).[32]

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31. Both the CBO and HCFA savings-to-cost estimates omit two of the program's costs and one of its savings. These omissions tend to cancel each other out.

    The cost figures used in both analyses exclude two components of the program's total cost: indirect costs to hospitals of conducting PSRO review, and the portion of the HSQB operating budget that is attributable to PSRO activities. Although representative data on hospital indirect costs are lacking, recent unpublished studies by the General Accounting Office suggest that these costs may amount to roughly 24 percent of the direct costs of review. Some of that 24 percent, however, is already paid for by the government through Medicare reimbursements of general overhead and administration. HSQB operating costs attributable to the PSRO program total roughly $8.5 million. Since a large proportion of both of these costs is likely to be fixed, however, it would not be appropriate to include the full amounts as program costs.

    The savings figures exclude possible Part B reimbursement savings. There are no applicable data about such savings, but as noted earlier in this chapter, they are probably small.

32. The transfer of costs to the private side occurs even if there are no changes in private utilization. It should not be confused with the so-called "Roemer effect," which refers

(Continued)

Revised Estimate of PSROs Effects on Utilization. As noted earlier, CBO now estimates that PSRO concurrent review has reduced Medicare days of care by approximately 1.5 percent, compared to HCFA's estimate of 1.7 percent. Replacing the HCFA estimate with the CBO estimate reduces estimated savings by 12 percent.

Reduced Ancillary Per Diem as a Percent of Total Per Diem Reimbursement. CBO and HCFA used different assumptions about the volume of ancillary services saved when PSROs eliminate days of hospitalization. HCFA assumed that the days of care saved by PSROs are similar to the average Medicare inpatient day in terms of the amount of ancillary charges. This is probably too high, for two reasons. First, PSROs seem to affect utilization more by reducing length of stay than by preventing admissions. Since the first days of hospital stays (especially the first day) typically involve more use of ancillary services than do later days, the days eliminated by shortening length of stay will tend to have lower ancillary charges than the average day. Second, if PSROs are doing their job correctly, the patients whose discharges the PSROs are hastening should have less need for hospital services--especially ancillary services--than patients whose stays are allowed to continue.

There are no precise estimates of the extent to which ancillary cost savings are less than the average per inpatient day. For this analysis, HCFA's estimate of per diem ancillary reimbursements has been reduced by 30 percent.[33] This reduces estimated savings by 7.4 percent.

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32. (Continued)
to changes in utilization resulting from changes in the number of available beds. The savings-to-cost estimates presented in this chapter, unlike those CBO has previously published, do not make any adjustment for the Roemer effect. A brief explanation of this change can be found earlier in this chapter.

33. The 30 percent figure is an assumption; the available data were not sufficient to provide a precise estimate. However, the savings-to-cost ratio is not very sensitive to this assumption, and the use of a figure substantially larger or smaller than 30 percent would not materially affect the analysis.

Adjusting the Per Diem Reimbursement Rate. Per diem reimbursements vary greatly from region to region and hospital to hospital. The HCFA report used the average per diem in those PSRO areas that were already active in 1978. This distorts the savings estimate if it is used to gauge whether a nationally implemented PSRO program (such as is presently in operation) is effective, for the areas that happened to be active in 1978 were atypically expensive. Replacing HCFA's per diem with a national per diem lowers estimated savings by 16 percent.

The result of these four adjustment factors is a savings-to-cost ratio of 0.4-to-1.[34]

Alternative Savings-to-Cost Ratios

The savings-to-cost estimate given above compares resource savings to total program costs. The following sections provide alternative ratios based on the other combinations of types of costs and savings.

Federal Reimbursement Savings Compared to Total Program Cost. Although a comparison of federal reimbursement savings to program costs overstates the actual savings generated by the program for society as a whole, it can nonetheless be useful information. For example, the net budgetary impact of a change in PSRO funding can be calculated from the ratio of reimbursement savings to costs.

The ratio of reimbursement savings to cost for review of Medicare patients is 0.9-to-1; that is, reimbursement savings are roughly 10 percent less than total cost.[35] The ratio would fall to 0.75-to-1 if Medicaid were included, even if one assumed that PSROs are as effective with Medicaid as with Medicare patients.

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34. Savings-to-cost ratio = HCFA estimate times the four correction factors.

$$S/C = 1.269\ (1-.55)(1-.12)(1-.074)(1-.16)$$
$$= 0.4$$

35. More precisely, 0.87-to-1:

$$S/C = 1.269\ (1-.12)(1-.074)(1-.16)$$
$$= .87$$

This decrease is due to the fact that over 40 percent of the Medicaid reimbursement savings would go to the states rather than to the federal government. If PSROs are totally ineffective with Medicaid patients, the reimbursement savings-to-cost ratio would fall to 0.6-to-1.

Ratios of Savings to Incremental Cost. All of the estimates discussed above, including HCFA's, compare some measure of savings to total cost. Keeping in mind the caveats described earlier in this chapter, one can estimate very roughly the ratio of savings to incremental cost. As noted above, the best available estimate is that the incremental cost of the PSRO program is roughly 50 percent of the program's total cost. Adjusting the CBO savings-to-cost ratio of 0.4-to-1 to correspond to incremental cost would raise it to 0.8-to-1.[36]

Since the incremental cost to the federal government is higher than the overall incremental cost, a different adjustment is required to calculate the ratio of reimbursement savings to incremental cost. Considering Medicare only, the ratio of reimbursement savings to costs (0.9-to-1 when total cost is considered) rises to 1.2-to-1 if incremental cost is considered. If the Medicaid portion of the program were included also, the ratio would probably be substantially lower, perhaps in the range of 0.8-to-1 to 1.1-to-1.[37]

Table 5 presents the range of cost estimates discussed in this section. They are arranged in accordance with the set of

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36. $\frac{0.4}{0.5} = 0.8$

37. The Medicare calculation is 1.2 = .87/.7, where .7 is the midpoint of the range of federal incremental costs described earlier.

    The higher of the two figures that include Medicaid assumes that PSROs are as effective with Medicaid as with Medicare. The lower assumes that PSROs are ineffective with Medicaid. The calculations are:

    1.1 = .75/.7.

    0.8 = .59/.7.

TABLE 5. RANGE OF SAVINGS-TO-COST RATIOS

Costs Considered	Savings Considered: Resource Savings	Savings Considered: Federal Reimbursement Savings
Total	0.4-to-1	0.9-to-1[a]
Incremental	0.8-to-1	1.2-to-1[b]

NOTE: Table figures include only Medicare portion of the program because of data limitations. See footnotes a. and b.

a. If Medicaid were included and if PSROs were as effective with Medicaid as with Medicare, this would be 0.75-to-1. If Medicaid were included and if PSROs were ineffective with Medicaid, this would be 0.6-to-1.

b. If Medicaid were included and if PSROs were as effective with Medicaid as with Medicare, this would be 1.1-to-1. If Medicaid were included and if PSROs were ineffective with Medicaid, this would be 0.8-to-1.

benefits (total savings vs. federal reimbursement savings) and the set of costs (total program cost vs. incremental cost) they take into account.

Long-Term versus Short-Term Savings

Long-term savings from PSRO review may be substantially larger than the short-term savings that have been the focus of discussion to this point. If PSRO-induced reductions in hospital days of care are maintained, it should be possible over the long term for hospitals to eliminate even the portion of costs that are fixed in the short term. For example, over the long term, hospitals can adjust by eliminating staff, beds, and the associated

overhead. As fixed costs are reduced, costs that have been transferred in the short term will be eliminated and resource savings will increase.

The maximum possible long-term savings would occur if all fixed costs associated with saved days were entirely eliminated. In that case, both resource and reimbursement savings would equal the entire cost of days saved, minus offsetting increases in other types of care.[38] This amount would be slightly larger than short-term reimbursement savings, since Medicare would no longer have to absorb some portion of the fixed costs. If this optimum were eventually reached, the resource savings would approximately equal the total cost of the program.[39]

There are no data indicating how long it will take to eliminate an appreciable portion of fixed costs. Before the elimination process can begin, however, two things must happen. First, hospital administrators have to discern that PSROs have lowered their occupancy rates from what they otherwise would have been. This might not be apparent to them for some time, since the typically small occupancy changes caused by PSROs (which average about 0.5 percent) would be swamped by much larger seasonal and yearly

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38. As noted earlier, savings resulting from PSRO review are adjusted throughout this paper (as well as in the HCFA and earlier CBO reports) by subtracting the costs of compensatory increases in ambulatory and long-term care. The same adjustment must be made in estimating maximum long-term savings and is reflected in the figures below.

39. If only incremental costs are considered, the maximum long-term savings would be about double program costs.

    This figure is based on an estimate that reimbursement savings correspond to about 88.5 percent of total per diem costs (HCFA, 1979 PSRO Evaluation, p. 157). Total per diem costs are the maximum total long-term savings. Therefore:

$$\frac{\text{max. long-term savings}}{\text{program costs}} = \frac{\text{reimbursement savings}}{\text{program costs}} \cdot \frac{\text{total per diem}}{\text{reimbursement savings}}$$

$$.98 = \frac{.87}{1} \cdot \frac{1}{.885}$$

fluctuations in utilization.[40] Second, the administrators must decide that the change brought about by PSROs is reasonably permanent, so that it would be sensible to start making long-term adjustments. Once that decision had been made, fixed costs would gradually be eliminated, but there is no information on the speed at which the adjustments would take place.

Caution is required in relating long-term savings to program costs. The savings-to-cost ratios discussed here compare costs and savings from a single year of program operation. When long-term savings are considered, however, such a comparison would not be sufficient, since the program would have to operate for some time at the lower short-term savings rate in order to achieve eventually the higher, long-term savings rate. A complex discounting procedure would be needed to combine the short- and long-term savings.

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40. A 1.5 percent change in Medicare utilization would roughly correspond to a 0.5 percent change in total utilization, since roughly one-third of all patient days in a typical hospital are attributable to Medicare patients.

CHAPTER III. POLICY ISSUES AND QUESTIONS FOR RESEARCH

Although evaluations of the PSRO program have consistently found that the program does have some impact on utilization, even the most optimistic estimates show it to be only marginally effective as a means of controlling costs. These findings raise a number of policy issues and point to a need for additional research in several areas.

POLICY ISSUES

Several policy issues arise in translating a savings-to-cost analysis into a decision about a program's value. In the case of the PSRO program, the most difficult issues concern the appropriate measures of the benefits produced by PSRO review. The first issue is whether the PSRO program is intended to lower budget outlays by increasing the efficiency of the total health-care system or to lower outlays by transferring costs to other parties. The second issue is whether PSRO utilization-reduction activities have "hidden" costs and benefits that are not taken into account in this analysis.

Changes in Efficiency Versus Transfer of Costs

Two distinct strategies appear frequently in attempts to control federal outlays for established health benefit programs. One approach is to limit outlays by promoting greater efficiency in the health-care industry, which reduces the cost of all health services. Increased efficiency in this context means using fewer resources to produce the same amount and quality of health-care services. Health planning, at least in theory, is an example of this approach. The second strategy aims at a reallocation or transfer of costs between the federal government and other payers. Regulations designed to reduce the Medicare share of hospital malpractice premiums are an example of this latter approach. Such a reallocation generally does not improve the efficiency of the health-care system, but as long as the measure does not require the expenditure of a significant amount of additional resources, efficiency will not be diminished.

Underlying the current debate about whether the PSRO program is saving or losing money is a disagreement about whether the program should be evaluated as an attempt to increase efficiency or solely as a means to reduce reimbursements by the federal government, regardless of effects on efficiency. The criteria used to evaluate the program would differ accordingly, but the range of savings-to-cost estimates provided in Chapter II allow one to assess the program's success by both criteria.

If the goal of the program is to reduce federal reimbursements by means of increased efficiency in the health-care system, it has not succeeded. The measure of success in that case would be the total change in resources consumed by the system. That change is shown by the ratio of resource savings to costs. Since that ratio is less than 1.0-to-1 for the PSRO program (regardless of whether total or incremental costs are considered), the net effect of the program has been to increase the system's consumption of resources somewhat—that is, it has made the system less efficient.

Evaluating PSROs as a reallocation program is more complex. A reallocation program is usually evaluated by comparing the size of the transfer to the amount of inefficiency produced (that is, to any increase in resources required to bring about the transfer). However, in the case of PSROs, the change in federal outlays (the reimbursement savings) stems not just from reallocation, but rather from a combination of reallocation, resource savings from reduced utilization, and program costs.

As a first step, the ratio of reimbursement savings to costs given in Chapter II provides an estimate of net federal outlay changes attributable to the program's operation. Depending on whether total or incremental costs are used, the program's net effect ranges from a 10 percent loss to a 20 percent savings.

The second step is to compare this estimate to the inefficiencies created, using the ratio of resource savings to costs. The inefficiency created is the net resource loss estimated by that ratio. Since the ratio is either 0.8-to-1 or 0.4-to-1 (depending on whether incremental or total costs are considered), the inefficiency amounts to 20 to 60 percent of program costs.[1]

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1. 1-.8 = .2, or 20 percent; 1-.4 = .6, or 60 percent.

Third, by combining these figures, one finds that the most favorable estimate (which considers only incremental costs) indicates that for every dollar in net federal outlay savings generated by the program, a dollar is added to the total resources consumed by the health-care system. (This reflects the finding that net reimbursement savings and the net resource loss are both equal to about 20 percent of program costs.) In contrast, successful reallocation programs typically generate transfers many times as large as the inefficiencies they produce. The provision in H.R. 934, as reported by the Senate Finance Committee, to eliminate the Medicare differential reimbursement rates for nursing services, for example, would have saved roughly $200 million in fiscal year 1981 if implemented for the full fiscal year, while requiring no increase in resources consumed.

Uncounted Costs and Benefits of the PSRO Program. The small net reduction in outlays that may have been produced by the PSRO program could have costs other than the loss of efficiency noted above. Likewise, there may be benefits other than the savings accounted for in the savings-to-cost ratio. In particular, there may be both monetary and nonmonetary costs or benefits to patients and their families.

One reason for concern about possible uncounted costs is the fact that the data indicate that PSROs affect utilization primarily by shortening lengths of stay. Given the composition of the Medicare population, it is likely that many of the discharged patients still have lingering illnesses or infirmities that limit their functioning but are not severe enough in the view of the PSRO to require inpatient hospital care. Their discharge a day or more earlier as a result of PSRO action might be not only stressful to the patient and the family, but also costly in a financial sense. It might be necessary, for example, for a wage-earner to miss work for several days to be home with the discharged patient.

Uncounted benefits might also be substantial. While earlier discharge from the hospital may impose hardships for some patients and their families, others may benefit from the earlier transfer to a less restrictive and less isolating environment. Many patients would also benefit in various ways if PSROs are successful in eliminating unnecessary use of medical treatments such as surgery or x-rays.

Ideally, such uncounted costs and benefits of the program should be included with its known costs and benefits (that is, those analyzed above and in Chapter II) in determining the value

of the program. This cannot be done at present, however, since the relevant information has never been collected. In the absence of such data, a troubling possibility remains that the savings-to-cost analyses presented here provide an incomplete and inaccurate view of the program's value.

QUESTIONS FOR RESEARCH

A number of critical questions about the PSRO program remain unanswered, and several new pieces of research and evaluation would be useful to the Congress in deciding the future course of utilization review.

Descriptive Studies of PSRO Denials. As noted above, solid descriptive information on the impact of PSRO denials of admissions or continued stays is lacking. Research could usefully address questions such as:

- What is the health status of the patients whose stays are shortened (or admissions denied) by PSROs? What are their diagnoses? What continued treatments do they need?
- What options are available to such patients? In particular, do they have skilled nursing care available, if appropriate? Where do they end up after discharge?
- What family and other supports are available to such patients? Do PSRO denials distinguish those living with others who can offer some care from those living alone?
- Are some denials ignored in practice because of a lack of suitable alternative placements (such as nursing homes)?

Such questions can be answered only by a careful descriptive study of a representative sample of denials. Simple anecdotal evidence is inadequate and is too easily slanted: proponents of the program will find cases illustrating hidden benefits, and opponents will find "horror stories."

Descriptive Information on PSRO Activities. As noted in Chapter I, there is currently a lack of systematic information on what activities PSROs are actually conducting. There are no overall statistics, for example, on the extent of focusing or the prevalence of various criteria for focusing. As a preliminary step toward assessing what types of PSRO activities are most

effective, it is necessary to ascertain what activities are currently underway.

The Relative Effectiveness of Different Types of PSRO Management and Review. The June 1979 CBO report explained in detail why the data then available provided little reliable information on the relative effectiveness of different types of PSROs or methods of review. The more recent data offer no improvement in this regard. Only two questions of this sort were answered by this year's evaluation data: (1) PSROs do not seem to improve their performance appreciably as they grow older, and (2) there are large--and unexplained--regional differences in PSRO impact. In the light of the marginal performance of the program to date, more information of this sort is essential to help program managers improve the performance of many PSROs.

Important questions of this sort include:

- What alternative review procedures are available, and how effective are they?
- What is the impact of focused review relative to unfocused review? What degree of focusing is optimal? What are the best criteria to use in selecting cases for review?
- What accounts for the striking regional disparities in PSRO impact?

PSRO Impact on Medicaid Utilization. Although review of Medicaid patients accounts for roughly a third of PSRO program costs, there are as yet no reliable data on the program's impact on Medicaid utilization. In the absence of such information, the data on Medicare impact have sometimes been used as an approximate measure of the program's total effectiveness. This could be misleading, for as noted in Chapter I, the program's effect on Medicaid is probably different--most likely substantially smaller--than its impact on Medicare. Additional research on the program's impact on Medicaid is needed to assess the effectiveness of the entire PSRO program.

APPENDIXES

APPENDIX A. EXECUTIVE SUMMARY OF THE JUNE 1979 CBO REPORT, "THE EFFECTS OF PSROs ON HEALTH CARE COSTS: CURRENT FINDINGS AND FUTURE EVALUATIONS"

The Social Security Amendments of 1972 established the Professional Standards Review Organization (PSRO) program in order to "promote the effective, efficient, and economical delivery of health care services of proper quality for which payment may be made under the Act." The PSRO program attempts to meet this goal by means of a peer review system that is funded by the U.S. Department of Health, Education, and Welfare (HEW). While the goals of the program are broad enough to include both reduction of expenditures and assurance of quality, the primary emphasis of the program has been to reduce utilization of--and thereby expenditures for--short-stay hospital care by means of "concurrent review." Typically, PSRO concurrent review consists of examining hospital admissions to certify that, from a medical standpoint, they are appropriate and reassessing each case periodically to determine whether continued inpatient care is warranted.

Review and reanalysis of the research on the effectiveness of PSROs indicate that concurrent review is reducing the number of days of hospital care of Medicare enrollees by about 2 percent. This estimate has to be viewed with caution, however. Most extant evaluation studies are too flawed to be reliable, and furthermore, they yield inconsistent evidence. Even the best research available--a generally sound study conducted by HEW's Health Care Financing Administration (HCFA), on which the 2 percent estimate is based--also suffers from some important weaknesses.

Because of the lack of relevant data, it cannot be assumed that PSROs are equally effective in reducing utilization by other federal beneficiaries (primarily Medicaid patients) whose care is subject to PSRO review. Similarly, it is not clear what effects PSRO review would have on other groups (for example, veterans and private patients) if the program's authority were extended to them.

Although PSROs seem to be effective in reducing Medicare utilization, it is doubtful that they produce a net savings. The recent HCFA analysis concluded that the monetary benefits of the Medicare portion of the PSRO program have been about 10 percent

greater than its costs. That analysis implies an extremely small net savings relative to expenditures for services that are currently being reviewed by PSROs (less than 0.1 percent of relevant Medicare reimbursements). A CBO reanalysis of the data revealed no net savings at all; CBO has concluded that the best estimate is that the savings generated by the program are about 30 percent less than program costs. Both the CBO and HCFA estimates, however, rest on controversial assumptions and are open to considerable error.

A number of factors, including budgetary constraints, current concern with the containment of health-care costs, and continuing changes in the PSRO program, suggest that further evaluation of the effectiveness and cost-effectiveness of PSROs is needed. Moreover, the inconclusiveness of much of the existing research on PSROs indicates the importance of improving the quality of evaluations of the program. To some degree, quality can be increased by improving the research methods employed. However, the reliability of even methodologically sound evaluations--for example, the recent HCFA evaluation, which is for the most part a careful and well-designed study--have been limited by the way the program itself has been implemented.

Unless changes are made soon in both implementation and evaluation, future evaluations of the program will continue to be unreliable--often to such a degree as to be useless in formulating policy. This problem extends both to new PSRO activities (for example, review of long-term care) and to refinements of existing activities (such as focusing review on certain diagnoses, providers, practitioners, or patient groups that offer the greatest potential for a PSRO effect).

The most important improvement in the evaluation of PSROs would be a more careful use of comparison groups. When the effects of a certain component of the PSRO program are to be evaluated, that component must be implemented only in some areas (the "treatment" group), while other selected areas (the "comparison" group) are left without it. If the treatment and comparison areas are initially similar in all other respects, comparing them after the program is underway reveals whether seeming "effects" of the program are actually caused by other factors. For example, recent years have shown a general trend toward a shorter average length of stay for hospitalized patients; use of comparison groups would avoid mistaking this trend, which began before the existence of PSROs, for an "effect" of the PSRO program. On the other hand, comparisons between areas with and without PSROs can be seriously

misleading if the treatment and comparison areas were not equivalent (or nearly so) before the program. For example, if the program were implemented in areas already experiencing a decline in average length of stay, and the comparison areas were those in which average length of stay was stable, the comparison would show a spurious "effect" of PSROs on length of stay.

The way in which the PSRO program has been implemented has hindered reliable evaluation by preventing the creation of an appropriate comparison group. Ideally, the treatment and comparison areas should be chosen randomly; as a second-best alternative, they could be selected to be alike in as many respects as possible. To date, however, the implementation of the PSRO program has relied on "self-selection": that is, areas have chosen on their own initiative whether or not to participate. Those that chose to participate became the treatment group, while those that chose not to participate became the comparison group. Self-selection virtually guarantees that the treatment and comparison groups will be dissimilar in many respects--often in ways that will cloud evaluation of the program.

Depending on what specific component of the program is involved, changing the manner of implementation to permit the use of good comparison areas might require legislative as well as HEW initiative. For example, several PSROs are currently pilot testing a new method of concurrent review that makes use of information on severity of illness and intensity of medical services as well as broad diagnostic categories. In contrast, the more traditional form of concurrent review is built around regional, diagnosis-specific norms for length of stay. The new method has received considerable attention as potentially cheaper and more effective than the traditional method. To test the new method reliably, one would randomly assign some PSROs to use it, while other areas would be left to use the old methods. Since the current statute gives individual PSROs the authority to choose their own criteria for review, however, HCFA would be unable to assign PSROs to the new system without legislative initiative.

Other improvements in the evaluation of the program could be made entirely on agency initiative. Multi-site evaluations should be stressed, and less emphasis should be placed on evaluations of individual PSROs. The measures of utilization employed should be comprehensive and should relate clearly to health-care costs. When feasible, utilization of health-care resources should be measured repeatedly over a considerable time span before the program is implemented; this allows one to assess pre-existing

trends and clarify initial differences between the irrelevant patterns for PSRO effects. A few of the best evaluations of PSROs have incorporated some of these improvements, but further improvement is still greatly needed.

Reliable assessments of the effects of a given PSRO program component are often feasible only at early stages of that component's implementation. As implementation continues and the number of areas with that component increases, it becomes increasingly difficult--and eventually impossible--to create a reasonable comparison group. For that reason, if current or pending changes in the PSRO program are to provide reliable evaluations that are useful in formulating future policy, improvements of the sort discussed here must be made in the near future.

APPENDIX B. THE REGRESSION MODEL

A number of regression models were used in the analysis. All were variations on the primary model described here, which is the exact model used to estimate the impact of the PSRO program on hospital utilization.

The primary model was a multiple regression model with PSRO areas as the units of observation. The dependent variable was Medicare days of care per 1,000 enrollees. The independent variables were as follows:

- o Baseline utilization rate (1974 Medicare-paid days of care per 1,000 Medicare enrollees);
- o Census region (3 dummy variables for 4 regions);
- o Proportion of total population age 65 or over (1974 to 1976 change);
- o Short-stay hospital beds per 1,000 population (1974 to 1976 change);
- o Population per square mile (1976);
- o Proportion of total hospital days accounted for by Medicare enrollees;
- o Physicians per 1,000 population (1974 to 1976 change);
- o Hospital occupancy rate (1976);
- o Proportion of families with incomes under $5,000;
- o Number of Medicare-certified long-term care beds per 1,000 Medicare beneficiaries (1978);
- o Number of beds in teaching hospitals per 100 total short-stay beds;
- o Hospital rate-setting commission (present versus absent);

- o PSRO "longevity" (months of PSRO review; zero for inactive); and

- o PSRO by region interactions.

The regional dummies and PSRO by region interactions were of course excluded in all within-region regression runs. All other two-way interactions with PSRO longevity were excluded because of their nonsignificance as a set.