A RAND NOTE

Second Surgical Opinion Programs: A Review of the Literature

Phoebe A. Lindsey, Joseph P. Newhouse

July 1989

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The Health Care Financing Administration,
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PREFACE

This literature review on second surgical opinion programs (SSOPs) is part of an assessment of Medicaid utilization review systems undertaken in response to a study mandated by Congress in Section 9432 of the Omnibus Budget Reconciliation Act (P.L. 99-509). This review complements a survey of all Medicaid agencies to determine the number and types of Medicaid SSOPs currently in operation (Lindsey, 1988). Both the literature review and survey results were provided to the Health Care Financing Administration of the U.S. Department of Health and Human Services under the auspices of the RAND-UCLA-Harvard Center for Health Care Financing Policy Studies to be included in a report to be presented to Congress.

SUMMARY

Congressional interest in second surgical opinion programs (SSOPs) as one method to reduce the cost of health care dates from the mid-1970s. Legislation in 1986--the Omnibus Budget Reconciliation Act (P.L. 99-509)--mandated a report by the Secretary of Health and Human Services on utilization review in Medicaid agencies. The report was to assess SSOPs and inpatient hospital preadmission review programs, including whether such programs impede access to care. This Note, a critical review of the literature on SSOPs, was developed as background information for the Secretary's report.

To assess the adequacy of SSOP studies and to then be able to judge the cost savings and other effects attributed to SSOPs, an ideal evaluation would include the following features:

- Follow equivalent cohorts of individuals over time, one cohort that was exposed to a second surgical opinion program and a control group that was not;
- Establish standard, comprehensive definitions of costs and outcomes of interest;
- Follow changes in these variables over time; and,
- Be on a large enough scale to detect, if present, changes in the rate at which physicians recommend surgical procedures (i.e., the so-called sentinel effect).

The body of publicly available literature was evaluated against these specifications in an effort to answer the following questions:

- Are SSOPs effective mechanisms for reducing health care costs?

  We found numerous studies in the literature that claim cost savings, but the studies have important methodological problems, and any claims of cost savings at this time must be treated with skepticism.

- How do SSOPs affect outcomes of patient care?

  The small amount of evidence in the literature suggests that these effects are not known.

This Note also considers how the literature addresses the following concerns on access and quality that are included in Section 9432 of P.L. 99-509:

- Do SSOPs impede access to necessary care and services, particularly in rural areas?

  We find no evidence that SSOPs do impede access, but the pertinent findings in the literature are from Massachusetts and may well not generalize to states with fewer physicians and lower population densities.

- How should a patient's utility influence the determination of the appropriateness of surgery?

  Studies have shown that for certain procedures, at least, patient preferences should affect determinations of what is appropriate, but the literature does not say what the actual influence of patient preferences is.

- How do physician errors regarding the need for operations affect the value of an SSOP?

  Error rates clearly degrade the value of a second opinion program; we provide a numerical example of how a second opinion program may make matters worse. Whether matters are, in fact, made worse depends importantly on how patients respond to conflicting advice and the error rate of the consulting physician.

- Should all physician consultants who participate in SSOPs be board certified?

  One study found that physicians with more training relative to the procedure under consideration agree more often than physicians with less training. This is weak evidence that board certified surgeons make fewer errors.

Because error rates by the consulting physician lessen the value of second opinion programs, there is a case for limiting consultants to board certified physicians unless this would impose a hardship because of distance. Such exceptions should be rare because board certified physicians are widely available.

- Do high nonconfirmation rates (where the second opinion differs from the first) signal unneeded or inappropriate surgical treatment?

  High nonconfirmation rates signify a different opinion, but not necessarily a more valid one.

- Do low rates of surgery in one geographic area suggest less inappropriate or surplus surgery than higher rates in another area?

  Areas with relatively high and low rates of three procedures--carotid endarterectomy, coronary angiography, and endoscopy--have approximately the same proportion of inappropriate procedures. It is not known whether this is true of most surgical procedures.

This review and analysis of the SSOP literature is complemented by a paper describing SSOP and inpatient hospital preadmission review programs currently available in state Medicaid agencies (Lindsey, 1989). This description is based on the results of a survey sent to all 50 state Medicaid agencies and to the agency in the District of Columbia. Forty-four agencies responded to this survey in the fall of 1987.

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CONTENTS

PREFACE iii

SUMMARY v

ACKNOWLEDGMENT ix

FIGURES xiii

Section
I. INTRODUCTION 1

II. BASIS FOR EVALUATING THE LITERATURE 6
Use of a Control Group 7
Cost and Outcome Definition 8
Changes in Study Variables over Time 9
Indirect Effects and the Scale of the Study 9

III. LITERATURE ON MEDICAID SSOPS 11
Massachusetts Medicaid Program (CPES) 11
Wisconsin Medicaid Program 18

IV. LITERATURE ON NON-MEDICAID SSOPS 20
Program for Elective Second Surgical Opinion 26
New York City Employees Program 26
New York and Michigan Medicare Demonstration 26

V. OTHER STUDIES RELEVANT TO SSOPS 28

VI. SUMMARY OF FINDINGS FROM REVIEW OF THE LITERATURE ON THE ABILITY OF SSOPS TO REDUCE COSTS 30

VII. THE LITERATURE'S FINDINGS ON QUALITY OF CARE AND ACCESS 31
Quality Issues Related to SSOPS 31
Access Issues Related to SSOPs 41

VIII. CONCLUSIONS AND RECOMMENDATIONS 44

Appendix: HISTORY OF CONGRESSIONAL INTEREST IN SSOPS 47

BIBLIOGRAPHY 53

FIGURES

1. Potential for Error in Surgical Opinions 33

I. INTRODUCTION

Second surgical opinion programs (SSOPs) enable the patient who has been recommended for an elective surgical procedure to seek a second opinion from a consulting physician before making a decision about an operation. SSOPs have two primary objectives: to improve the patient's information base and decision processes and to reduce operative risks and costs attributed to questionable and perhaps unnecessary operations.

This Note, intended as background information for the report mandated by Congress in Section 9432 of P.L. 99-509, the 1986 Omnibus Budget Reconciliation Act legislation,[1] reviews the literature available on SSOPs and assesses how well the literature has been able to answer the following questions:

- Are SSOPs effective mechanisms for reducing health care costs?
- How do SSOPs affect outcomes of patient care?

This Note also considers how the literature addresses the following concerns on access and quality that are included in Section 9432 of P.L. 99-509:

- Do SSOPs impede access to necessary care and services, particularly in rural areas?

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[1]This section of the law requires that the Secretary of Department of Health and Human Services report to Congress no later than October 1, 1988, on utilization review issues including the following: (a) the identity of those procedures that are high volume and high cost among Medicaid eligibles; (b) Medicaid payment rates for such procedures and the annual aggregate payment amounts made; (c) the rate at which each procedure is performed on Medicaid patients, and where available, the procedure rates for a comparable, non-Medicaid population; (d) the extent to which a mandatory SSOP or program of inpatient hospital preadmission review impedes access and the measures taken to address such impediments; and (e) a list of the procedures that should be included in a mandatory SSOP.

- How should a patient's utility influence the determination of appropriateness of surgery?
- How do physician errors regarding the need for operations affect the value of second surgical opinion programs?
- Should all physician consultants who participate in SSOPs be board certified?
- Do high nonconfirmation rates (where the second opinion differs from the first) signal unneeded or inappropriate surgical treatment?
- Do low rates of surgery in one geographic area suggest less inappropriate or surplus surgery than higher rates in another area?

Satisfactory answers to all of these questions are not to be found in the literature, indicating that the studies to date are not sufficiently comprehensive to allow for the definitive conclusions that some have reached about the effectiveness of SSOPs. This Note concludes with a discussion of ongoing research directed at answering some of the questions centering around SSOPs.

This review and analysis of the SSOP literature is complemented by a paper describing SSOP and inpatient hospital preadmission review programs currently available in state Medicaid agencies (Lindsey, 1989). This description is based on the results of a survey sent to all 50 state Medicaid agencies and to the agency in the District of Columbia. Forty-four agencies responded to this survey in the fall of 1987.

Concern over rising health care costs and the proportion of health care expenditures directed to hospitalizations stimulated payors to develop SSOPs, inpatient hospital preadmission review, and other utilization review programs in the early 1970s. Nonetheless, from 1965 forward, with the exceptions of 1973 and 1984, health care expenditures as a percentage of Gross National Product (GNP) have increased every year, to 11.2 percent of GNP in 1987. Of every dollar spent on personal health care services, 44.5 cents goes to the hospital and an additional 23 cents is spent on physician services. If, as is estimated, one-

third of hospital and physician costs are related to surgery, then the costs of surgery absorb approximately 23 cents of every health care dollar.[2]

The number of surgical operations has also been steadily increasing, from 3.3 million procedures per year in community hospitals in 1967 to more than 5.2 million procedures in 1986 (Health Care Financing Administration [HCFA] Division of National Cost Estimates, 1987), an average annual growth rate of 2.3 percent.[3] This growth in the number of surgical procedures considerably exceeds the 1.0 percent annual growth rate in population for the same period. This disproportionate growth in the rate of surgical procedures has been attributed to several causes or combinations of causes, including:

- Increased insurance coverage, largely as a result of public payor programs such as Medicare and Medicaid;
- Increase in the surgeon/population ratio, from 30 per 100,000 population in 1965 to 40 per 100,000 population in 1985;[4] and
- Increasingly sophisticated medical and surgical technologies that permit a broader range of therapeutic interventions for diseases and conditions.

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[2]Roenigk and Bartlett (1982) use this one-third proportion, citing the U.S. Congress, House Subcommittee on Oversight and Investigations of the Committee on Interstate and Foreign Commerce, *Cost and Quality of Health Care: Unnecessary Surgery*, 94th Congress, 2nd session, January 1967, p. 32.

[3]The number of surgical operations in short-term hospitals (exclusive of federal, state, and local government hospitals and psychiatric and tuberculosis hospitals), as reported by the American Hospital Association, has also grown from 17,620,055 in 1978 to 21,174,341 in 1986.

[4]This ratio includes general surgeons, ophthalmologists, urologists, orthopedic surgeons, and other surgical specialties, which include neurological surgery, otorhinolaryngology, plastic surgery, colon and rectal surgery, and thoracic surgery, as reported in the 1986 edition of the *AMA's Physician Characteristics and Distribution in The U.S.* Obstetricians-gynecologists were not included in this count. Had they been included, the change would have been from 38.6 per 100,000 in 1965 to 52.7 per 100,000 in 1985.

The costs of surgery can be lowered by reducing the number of operations performed, reducing the amount paid for physician services (assuming that this does not induce more surgery) or hospital services, or a combination of these strategies. Reducing the number of operations performed is desirable only if one assumes that the number currently done is inappropriately high and any reductions would primarily be among the inappropriate group. Making such a determination requires not only that there be criteria by which appropriateness can be effectively judged, but also that there be criteria to determine when the number done is inappropriately low, which requires information on the large number of individuals who did not receive surgical procedures in a given year.

SSOPs were first introduced in 1972, largely because of the belief that too many operations were being performed, thereby further fueling the increases in health care costs. The first program, established in New York as a joint effort between Cornell-New York University Hospital and a Taft-Hartley benefit fund, was a voluntary program, meaning that insurance beneficiaries could choose whether to seek a second opinion before proceeding with a surgical procedure. This program, along with most voluntary programs, covered all elective surgical procedures, although some voluntary programs chose to cover only certain procedures. Most voluntary programs permit the patient to proceed with the surgical procedure, regardless of whether the second opinion confirms the first. Some may permit the patient to seek a third opinion if he or she wishes to do so.

A mandatory program, requiring that beneficiaries seek a second opinion if they wanted the insurance plan to pay for the operation, was soon instituted by these same sponsors. Mandatory programs may cover all surgical procedures, but it is more likely that mandatory programs will specify a set of procedures for which a second opinion is required. If the second opinion does not confirm the first, some mandatory programs may require a third opinion. Others require that a peer review or other utilization review body determine whether insurance will cover the procedure if the patient should proceed with the surgical procedure.

Still others may permit the patient to proceed with the surgical procedure without further review or opinion.

Since the introduction of the first SSOP 16 years ago, other private insurers and some Medicaid agencies have instituted both voluntary and mandatory programs. The Medicare program conducted a three-year demonstration (1978-1981) in Detroit and New York City to try to answer the question, "What is the best way to organize an SSOP and what are the long-term effects of such a program on cost and quality of care?" (Galblum, 1980). Congress has had a long-standing interest in the potential of SSOPs to cut health care costs, most recently mandating major studies of SSOPs and their applicability to both Medicare and Medicaid programs.[5] The appendix provides a historical overview of Congressional inquiries and initiatives since 1974 that are related to SSOPs.

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[5]Section 9401 of PL 99-272, the Consolidated Omnibus Budget Reconciliation Act requires that Peer Review Organizations (PROs) conduct a 100 percent review of certain surgical procedures. This issue is currently under study by the Health Standards and Quality Bureau of HCFA. Section 9432 of P.L. 99-509, the Omnibus Reconciliation Act of 1986, mandates a HCFA study to consider the potential of mandatory SSOPs for Medicaid agencies.

II. BASIS FOR EVALUATING THE LITERATURE

The literature generated about SSOPs falls into two categories:

1. Generally descriptive articles and progress reports on the status of various SSOPs; and
2. Reports of evaluations of SSOPs.

The evaluation studies can, in turn, generally be classified into three categories:

1. Studies of Medicaid programs (Massachusetts and Wisconsin);
2. Studies of other SSOPs, particularly the variety of programs that developed in New York, the cradle of SSOPs; and
3. Studies addressing related aspects of SSOPs, such as surgical decisionmaking.

To judge the literature's assessment of SSOPs, we begin by describing the ideal evaluation which establishes the baseline against which the body of literature will then be reviewed. We also discuss how the literature addresses issues of access and quality that were raised by Section 9432 of P.L. 99-509.

To determine how much SSOPs have reduced health care costs and to identify the effects they have had on patient outcomes, the ideal evaluation would

- Follow equivalent cohorts of individuals over time, one cohort that was exposed to a second surgical opinion program and a control group that was not;
- Establish standard, comprehensive definitions of costs and outcomes of interest;

- Follow changes in these variables over time; and,
- Be on a large enough scale to detect, if present, changes in the rate at which physicians recommended surgical procedures (i.e., the so-called sentinel effect).

USE OF A CONTROL GROUP

To estimate what experience would have been in the absence of an SSOP, the study should have a control group. Subjects in the control group would either not have second opinions paid for or not have them mandatory, depending upon the comparison one wanted to make. The ideal study would employ randomization in assigning participants to experimental and control groups.[1]

A less desirable alternative is to establish a nonequivalent control group from a similar geographic area. For example, two different populations that participate in voluntary and mandatory programs could be compared. Such a comparison would provide information about the types of people who choose to have a second opinion, but the self-selected nature of those who participate voluntarily would not provide a good basis for comparing information on cost and other program effects.[2] A study that makes before and after comparisons among a given population is the least desirable option for structuring a control group.[3]

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[1]Galblum (1980) noted that a randomized trial had been tried for one diagnosis, tonsillectomy and adenoidectomy, but did not discuss the results of that trial or provide citations to it. She suggests that the costs of randomization as well as ethical issues, presumably related to whether the control group is in any way disadvantaged by not having a second opinion, may inhibit the development of large scale randomized trials. These arguments, however, do not withstand scrutiny. The cost of randomization, per se, is minimal. The large cost is in collecting data in a prospective study, but such studies will be necessary if the state of knowledge about SSOPs is to improve. Thus, the real issue is the value of establishing the merits of second opinion programs. The ethical issue does not seem persuasive; just because patients are not part of a group encouraged to get a second opinion does not preclude them from obtaining such an opinion at their own behest.

[2]This study would provide more reliable data if the entire population eligible for each program (the voluntary and the mandatory) were used in the assessment, and these populations were comparable.

[3]This type of study is confounded if other changes in the

COST AND OUTCOME DEFINITION

Costs include more than the costs of administering the program; the expenses associated with alternative medical treatment or an alternative surgery should be included in these calculations. The determination of costs of and savings attributed to the SSOP should include the following dimensions:

- Cost of designing, establishing, and operating the SSOP (costs of designing and establishing the SSOP are capital costs and should be amortized, though defining a lifetime for the SSOP is problematic);
- Cost of alternative surgical or medical treatments offered immediately in lieu of the initially recommended surgical treatment;
- Downstream medical costs, experienced by the patient who defers surgery as a result of the SSOP, discounted at an appropriate rate (this will also include the costs of the surgery if it is performed later);
- Costs to the patient or employer for his/her time, and travel costs and other expenses related to obtaining a second opinion;
- Costs to the employer and the patient of lost work or leisure time because of the patient's condition and either the medical or surgical treatment; and
- Savings from unneeded surgical treatments, including costs of hospital stays, physicians' fees, bad medical outcomes (e.g., operative mortality), and other related costs, appropriately discounted.

Patient outcomes that are used to evaluate an SSOP should be comprehensive, drawn from both self-reported data and a physician's assessment of outcomes. Self-reported patient outcomes include

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eligibility/benefit package are made at the same time the SSOP is introduced. In fact, this happened in the Massachusetts Medicaid program, one of the most intensively studied SSOPs. See below.

functional status, i.e., the patient's ability to perform self-care activities, his/her mobility, and the ability to perform physical, role, household, and leisure activities, as well as the individual patient's assessment of his/her general health. Joffe (1980) suggests that outcome measures could include difference in mortality, change in activity level, change in perceived levels of health, recurrence of condition, and complications from both surgery and alternative medical treatment.

CHANGES IN STUDY VARIABLES OVER TIME

The effects on patient health of avoiding a surgical procedure are not conclusive at the point that the option of surgery is rejected but, in fact, develop over time. In particular, the patient may, at the point of a nonconfirming second opinion, defer the surgery temporarily but ultimately have the procedure performed, a factor that influences both cost and health outcomes. As a result, a longitudinal study is desirable.

Longitudinal studies, however, pose problems of minimizing attrition and collecting data on use and outcomes. Claims data are a relatively inexpensive method for measuring use and certain limited outcomes such as readmission rates, but they do not allow for the followup of any insureds who lose their eligibility in the followup period. This is especially a problem with Medicaid populations because of changes in eligibility for that program. If data on use and outcome must come from individuals rather than from claims data, cost is considerably increased.

INDIRECT EFFECTS AND THE SCALE OF THE STUDY

The ideal SSOP evaluation should determine not only the direct effects of the program in reducing surgical procedures but also its indirect effects. The direct effect of a program is the extent to which it influences patients to seek or to avoid surgical procedures, based on the opinion of more than one physician. The indirect effect, or the so-called sentinel effect, is the effect that physician awareness of the program has in reducing the number of surgical procedures recommended or

the number of referrals made.[4] Some of these deterred operations might, in fact, be appropriate.

For each study in the three categories of SSOP literature--Medicaid SSOPs, other second surgical opinion programs, and SSOP-related issues--the following questions will be considered:

- How was the control group, if any, selected?
- How comprehensively defined are cost and outcome variables?
- What do the findings show about changes in cost and outcome over time?
- What was the duration of the study?

In addition, we discuss other reported results that increase our understanding of the effects of SSOPs.

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[4]Other utilization review programs may also have a sentinel effect on surgical and other procedures. Inpatient hospital preadmission review programs, for example, may also influence whether patients see physicians, in some instances, or, more likely, whether physicians hospitalize patients for certain procedures.

III. LITERATURE ON MEDICAID SSOPS

Thirteen mandatory Medicaid second surgical opinion programs are currently in operation. Two of these, the Consultation Program for Elective Surgery (CPES) in Massachusetts, and the SSOP program in Wisconsin, are addressed in the published literature. The Massachusetts CPES, the oldest continuous Medicaid SSOP program, was established in 1976; the Wisconsin program followed in 1981. Current information on the Wisconsin program is available in the survey of Medicaid programs undertaken in conjunction with this Note, but current information on the Massachusetts program is not, because Massachusetts' response had not been received at the time of this writing (Lindsey, 1989).

MASSACHUSETTS MEDICAID PROGRAM (CPES)

Gertman et al. (1980), Martin (1982), Martin et al. (1982), and Poggio et al. (1985) have all studied the Massachusetts CPES program. The Poggio et al. study was the most comprehensive. CPES uses two different program models, administered by five regional PRO-type foundations. Three regions use a "hands-on" model in which patients referred to the program are examined by a foundation-assigned surgeon who assesses the need for the proposed operation. The other two regions use a "desk audit" model in which proposed patients are screened by the foundation, using preset criteria developed by area physicians in consultation with the CPES-administering Department of Public Welfare. Those patients not meeting the proposed criteria, as well as their referring physician, are notified by the foundation that a hands-on consultation is required if the patient is still interested in having the proposed surgery (Martin et al., 1982).

Gertman et al. looked at the first year of data for the CPES and reported data on only one procedure, hysterectomy, of the eight that the program mandatorily covers. They claimed that the CPES did influence which patients actually had surgery on the grounds that patients who received a confirming second opinion for hysterectomy were much more

likely to undergo the surgery than those who received a nonconfirming second opinion. Although this finding is strongly suggestive, it does not prove the Gertman et al. claim, because even without an SSOP, those who were confirmed may have been more likely to have received surgery. Gertman et al. suggested that SSOPs "probably offer important improvements in quality of care," but offered no evidence for this suggestion. Neither were they able, presumably because of the short study period and the newness of the program, to determine whether the CPES had a sentinel effect.

Only a limited cost analysis was possible at the time of the Gertman et al. study. Gertman et al. focused their analysis on 49 women with negative second opinions and estimated a benefit/cost ratio of 2.27. This estimate is based on an assumption that the 26 patients who were not approved and did not have surgery would have gotten surgery in the absence of the program; because the study lacks a control group, there is no empirical evidence for this assumption. Even granting the assumption, these calculations overestimate the net benefits because they do not account for out-of-pocket costs to the patient, costs for diagnostic procedures performed by consultants, costs of program administration, or downstream medical and surgical costs for those who did not immediately undergo surgery. Gertman et al. found a participation rate of 77.2 percent, with the balance of the eligible population receiving waivers because of endangering conditions (10.5 percent) or not keeping their appointments (12.3 percent) for a second opinion.

The Gertman et al. study provides some insight into the CPES program, but does not have sufficient data to determine the effects of this program on cost or on patient outcomes. Perhaps surprisingly, in light of their estimated benefit/cost ratio, the authors concluded that "the direct net benefits, if any, of a mandatory second surgical opinion program for Medicaid recipients in Massachusetts are small."

A subsequent evaluation of CPES was performed by Martin (1982) and Martin et al. (1982), who used a nonequivalent control group in a 44-month interrupted time series study.[1] Two distinct approaches were

[1]This nonequivalent control group consisted of areas in the state that had not yet implemented the CPES.

used to examine the effect of CPES on the number of operations performed among the Medicaid population. First, the surgery decisions of all 2501 persons referred to the CPES program from the first two regions of the state that implemented CPES (metropolitan Boston and the Worcester area) during a one-year period were studied. Researchers were interested in the direct effect of the program, i.e., identifying the number of patients who decided against the operation after a negative second opinion. Second, monthly surgery rates for each CPES procedure in each of the five regions over a 44-month period spanning CPES implementation were analyzed. This approach was selected to determine, based on monthly averages of procedures performed, whether fewer operations were performed as a result of the program. Thus, it was an effort to measure both the direct and the sentinel effect. Martin et al. followed 59 percent of the patients for one year or more, 36 percent of the patients for six to 12 months, and 5 percent for three to five months. They found a 20 percent drop in surgery rates, compared to the rate the year before CPES had been instituted, with 29 percent of this decrease attributed to the direct effects of the program and the remainder to indirect or sentinel effects.[2] For seven of the eight procedures, this decline was statistically significant ($p < 0.05$).

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[2]The sentinel effect was measured by subtracting the direct program effect from the total program effect, defined as follows. The number of forgone operations estimated from the analysis of surgery rates before and after CPES implementation provided an estimate of the total effect of the program, i.e., the direct effect on persons referred to the program, as well as any effect that resulted because fewer people were initially proposed for surgery (the sentinel effect). Estimates of the maximum and minimum sentinel effect differed for the two types of PRO foundations administering the program. For two of the three foundations using the consultation model, all procedures except cholecystecomy and disc surgery showed some evidence of a sentinel effect; the procedure showing most evidence of a sentinel effect was tonsillectomies and adenoidectomies. Estimates of the maximum and minimum sentinel effect of the third region using the consultative model were not reported. In the case of the two foundations using a desk audit model, results attributed to the sentinel effect differed. In one foundation the sentinel effect accounted for most of the impact of CPES on tonsillitis and adenoidectomy, cholecystectomy, and hysterectomy. In the other, there was evidence of the sentinel effect only for the submucous resection procedure.

These researchers noted that their approach in determining direct and indirect program effects may have overestimated the magnitude of the sentinel effect, because some of those confirmed for surgery who did not have it may have been affected by the program (i.e., some patients may defer or forgo surgery because of the information provided by the consultants or as a result of additional time to consider the decision), and some of the drop in rates concurrent with the installation of CPES may have been caused by other factors. (Of course, it is also possible that the drop in surgery rates may have been even larger, were it not for other factors; that is the weakness of a before and after design.) The study did not measure patient outcomes for either the group directly affected by the program or the larger group indirectly affected by the program. Further, the study tracked the post-CPES rates for less than two years, and tracked for only six months the alternative treatments sought by those who did not have surgery as a result of the CPES second opinion.

The Martin studies estimated a benefit/cost ratio of 3.5 for the CPES, based on the analysis of data from the two regions that had the most data available (Boston and Worcester). Cost estimates included physicians' fees and diagnostic tests ordered by the consultant and expenditures for administration, both within the Department of Public Welfare and in the five foundations. The researchers, in their calculations of cost, did attempt to account for the costs of alternative surgical procedures and of alternative medical treatments up to six months post-consultation. Alternative surgical costs were estimated from actual Medicaid payments of related operations for program participants; alternative medical treatment costs for each procedure were estimated by comparing Medicaid payments for a sample of patients having surgery, less the surgery costs, with Medicaid payments for a sample of patients forgoing surgery. This procedure, however, makes the dubious assumption that the medical costs for those who forgo surgery are the same as for those who do not.

The analysis--indeed all analyses of the CPES program--was complicated by a 30 percent reduction of Medicaid surgery fees in February 1976, whereas the program began to be implemented in March 1977. Adjusting for this fee cut that occurred this close to the CPES implementation posed problems for the analysis. Martin et al. adjusted for the fee reduction by eliminating all data before the cut to avoid the potential bias from improper specification of how the cut affected use.

The Martin et al. evaluation is incomplete, because it does not address any costs or benefits to patients or other insurers, nor does it consider downstream medical and surgical costs beyond the six-month post consultation followup. Hence, it does not provide adequate information for judging the program's effect.

Poggio et al. (1985) is the most comprehensive evaluation of the Massachusetts CPES. Poggio et al. looked at both direct and indirect program effects, identified patient outcomes for those directly affected by the CPES, and defined costs more comprehensively than had other evaluations.

That study, an update of an earlier report (Poggio et al., 1981), presents data from CPES's March 1977 inception through September 1982, focusing on effects of major program changes implemented in 1981. The Connecticut Medicaid population was used as a control group to determine the effect of CPES in reducing the surgery rate, taking into account that approximately 22 percent of the Connecticut Medicaid-eligible population sought second opinions in the absence of any organized SSOP.

Poggio et al., using in-depth interviews with a sample of 365 patients to determine the direct effect of second opinions in reducing surgery rates, estimated a 1.9 percent reduction in surgery rates among the participants.[3] Because Poggio et al. do not present standard errors for this part of the analysis, we do not know if this figure is significantly different from zero. The Poggio et al. study also

[3]This figure not only accounts for those forgoing surgery as a result of the program but also the percentage who changed their plans in favor of surgery as a result of the program.

estimated what the frequency of surgery among various groups of participants would have been had they not participated in the program. They found that of the patients confirmed for surgery who, were it not for CPES, would have forgone surgery, 21 percent were persuaded to have surgery as a result of this program. Individuals changing to surgery tended to be less healthy before treatment than individuals not having surgery. For four out of six health outcome measures, the group that decided against surgery tended to have a somewhat worse outcome than was predicted, whereas the group that decided to have surgery tended to have an improved outcome.[4] These differences reached statistical significance in some instances, but when the weighted differences were averaged across both groups, the difference was consistently small and not significant. The Poggio et al. study concluded that across the participant population there was virtually no CPES effect on health outcomes because the program caused relatively few individuals to change treatment, and because those who did change experienced little if any direct effect on health. Among those who did change, the slightly better than expected status of the patients persuaded to have surgery exceeded the slightly worse than expected health status of those discouraged from having surgery. The study emphasizes that nothing is known about the effect of CPES on the health of the nonparticipants, i.e., those who, because of the sentinel effect, were not recommended for surgery.

The Poggio et al. study found that the desk audit model of the CPES program cost less per surgery averted than the personal consultation model. This, however, does not tell us which model is preferable, because of not knowing the health effects of the averted operations and because the number of averted operations may differ between the two models. In particular, the personal consultation model may have made fewer errors. Over and above these problems, the measure of cost used in this study is flawed. Although it accounted for administrative costs

[4]The direct effect of the CPES on health outcomes was estimated by comparing reported actual health outcomes based on interviews with a sample of participants with predicted health outcomes, using five measures of health status and one summary measure of overall health.

and estimated expenditures for related surgical procedures, it did not include time or travel costs to the patient, nor discounted downstream medical and surgical costs. The study estimated the direct effect of CPES on Medicaid to be an annual savings of $110,000, whereas the annual operating costs of the program were about $300,000. This estimate of savings did not and was not intended to estimate the total cost savings of CPES. Poggio et al. estimated the net total savings resulting from the CPES at about $1 million annually, based on estimates of surgery rate effects and cost estimates applied to a standardized population.[5] This net savings estimate, according to Poggio et al., reflects offsets for the costs of program operations as well as the sentinel effect.

The Poggio et al. study makes an important contribution to the understanding of the direct versus the indirect effects of an SSOP. Poggio found that only 10 percent of the reduction in surgical rates could be attributed to the direct effects of the program; the remaining 90 percent of the reduction stemmed from the indirect effects,[6] about which very little is known.

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[5]Because the CPES constituted different delivery models implemented at different times, it was necessary to standardize the size of the eligible population to a number comparable to pre-CPES implementation and to standardize the surgery rates to pre-implementation means.

[6]Poggio et al. estimated the direct effect of CPES on surgery rates based on the CPES patients' appraisal of the program's effects on their decisions and reported plans regarding surgery. Those who had had surgery were asked whether they would have had surgery in the absence of a confirming second opinion and those who did not have surgery were asked about the program's effect, including the effect of a nonconfirming second opinion, on their decision not to have surgery. As noted in the text, the program's direct effect on the surgery rates of its participants was estimated to be about 2 percent. A nonequivalent control group design was the methodology used to estimate the total program effects on surgery rates. By pooling time series data from before and after program implementation for treatment and comparison sites, Poggio et al. combined a pretest-posttest design with treatment control group design. The geographic area-month was the unit of observation. Three model specifications were constructed: a single trend model using one time variable for all areas in both Massachusetts and Connecticut; a state trend model, incorporating a separate time trend variable for each state; and an area trend model using a separate time trend variable for each geographic area in both Massachusetts (five areas) and Connecticut (six areas). Using the state trend model, the preferred model, surgery rates in Massachusetts were reduced an estimated 24 percent. The Poggio et al. study points out that by comparing the 2 percent direct effects figures with the 24 percent total

The Poggio et al. study estimated the change in the cumulative level of surgery between 12 months and 34 months after program contact. About 78 percent of the patients underwent the procedure within one year of the recommendation, 1 percent had related surgery, and 21 percent had no surgery at all. After a period of 34 months, the total having surgery had increased to 81 percent, indicating, according to these researchers, that surgery is not significantly deferred by the program, unless such a deferment is almost three years or longer.

These data may appear to show that downstream costs are unimportant. However, because savings attributed to second opinion programs must come from the group that did not undergo surgery, these data in fact emphasize the importance of downstream surgical costs. Fourteen percent ([81 - 78]/[100 - 78] = 14 percent) of the group that did not initially undergo surgery did, in fact, have surgery in the 12-34 month interval and both that group and the remainder of the patients not undergoing the surgical procedure had an undetermined amount of medical treatment. Moreover, some individuals may have had subsequent medical or surgical treatment after the 34-month period.

Whether the sentinel effect diminishes over time or what the projected duration of this effect beyond the 34-month study period might be is not addressed in this study.

WISCONSIN MEDICAID PROGRAM

The statute that established Wisconsin's Medicaid program in February 1981 mandated an evaluation within a year, which was to be the deciding factor in whether to maintain or terminate the program. The results of this evaluation, reported by Tyson (1985) are, in fact, for only seven months of data. A type of control group was established, looking at data on common surgical procedures not covered by the Wisconsin program and comparing changes in surgical rates between procedures covered by the program and those not covered. An attempt was

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effects estimate, it is clear that the program's effects on surgery rates result principally from the indirect effects; the 90 percent figure is (24 - 2)/24.

made to determine alternative medical and surgical treatments by surveying the patients who participated in the program, but the limited duration of the study time did not permit proper assessment of this issue. The short study time also affected the calculation of costs: although the evaluation attempted to include the costs of developing and administering the program, it did not include any time or travel costs to patients, nor any downstream medical or surgical costs. Savings to the Medicaid program were calculated, and the study concluded that the program returned $22 for every dollar expended. For reasons just described, this estimate is likely to be a large overestimate. The overall surgical rate was estimated to have dropped 33 percent, because the control procedures did not show a commensurate drop, but whether other surgical procedures are a satisfactory control group is doubtful. The monitoring efforts did find that elective surgery rates were dropping regardless of the presence of an SSOP, though the researchers concluded that the SSOP hastened the drop.[7] Ninety percent of the overall decrease in surgical rates was attributed to the sentinel effect, though how this was determined is not clear.

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[7]The researchers reached this conclusion by comparing the rates before and after the implementation of the SSOP for the ten SSOP procedures with those of nine different "control" procedures. The surgery rates of all 10 SSOP procedures dropped, and eight of these decreases were significant at the 0.05 level, ignoring the problem of multiple comparisons. For the nine control procedures, the changes in only three [one increasing and two decreasing] were statistically significant, again ignoring the issue of multiple comparisons.

IV. LITERATURE ON NON-MEDICAID SSOPS

New York spawned a variety of SSOP programs, beginning with those at Cornell-New York University Hospital, chronicled by McCarthy and various coauthors (1974, 1978, 1980, 1981), by Grafe (1978), by Ruchlin (1982), and commented on by Pauly (1979). Joffe (1980) discusses the PRESSO program, and Paris (1979), a New York City program for city employees. Poggio et al. (1985) also evaluated the Medicare demonstration in New York City. We will discuss each of these programs in turn.

The McCarthy and Widmer (1974) evaluation of the first SSOP, the voluntary program established by Cornell-New York University Hospital and a Taft-Hartley benefit plan,[1] and their preliminary reports about the surplus surgery that SSOPs appeared to deter, piqued the interest of the payor community as well as Congress. McCarthy and Widmer found a 30 percent nonconfirmation rate among a sample of 754 patients in a voluntary program and an 18 percent nonconfirmation rate among a sample of 602 patients in a mandatory program.[2]

Emergency procedures and patients over the age of 65 were dropped from this study, provoking criticism from Lance and Haug (1978), among others, regarding the adequacy of the sample for making extrapolations. There was no control group against which to compare study results. The cost calculations did attempt to account for program operating costs, which they estimated to be about one-eighth of the savings resulting from the SSOP, but these estimates are quite rough. The researchers pointed out that their preliminary results did not account for

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[1]This particular benefit plan, the Storeworkers Health and Welfare Fund, was directed by an equal number of union and management trustees responsible for the administration of pension and health and welfare programs in accordance with the Taft-Hartley law.

[2]The nonconfirmation rate indicates the proportion of times that a consultant's opinion does not confirm that of the diagnosing physician. The hazards in using this rate to make judgments about appropriate care are discussed below.

alternative medical or surgical treatments, nor did they account for downstream medical and surgical costs. Nonetheless, these findings, incomplete as they are, were erroneously extrapolated by Congress and others (Galblum, 1980), and set in motion a series of misconceptions about the potential effectiveness of SSOPs (see the appendix).

In a more comprehensive study, McCarthy and Finkel (1978) studied both the voluntary and mandatory programs at Cornell to determine the necessity of recommended surgery. A study population comprised all 710 patients who had not been confirmed for surgery, of the 7274 individuals who had participated in both programs since their inception. A comparable population of 696 individuals among the total participant population who had been confirmed for surgery was selected at random for comparative purposes. The followup consisted of phone calls to the patients at six- and the 12-month intervals. If no medical or surgical treatment was reported by those nonconfirmed in two consecutive calls (at the 12-month point), the patient was deemed asymptomatic and dropped from the study. At the 12-month point, 77.9 percent of those nonconfirmed had not had surgery and 64.4 percent of this group had not had medical treatment, so they were considered to represent surplus or unneeded surgery.

The proper comparison, as we have pointed out, is between a group eligible for an SSOP and a group not eligible for such a program. Hence, McCarthy and Finkel's comparison cannot be used to assess the effect of an SSOP. Among other problems, we do not know how many of those not confirmed for surgery would not have had surgery in the absence of a program, nor how many had costs after the 12-month study period.

The McCarthy and Finkel study does not identify the effects of their programs on patient outcomes, though they do identify a population at risk--11.1 percent of those confirmed for surgery who reported that they had received neither surgical nor medical treatment during the study period.

Savings of more than $2 million, calculated by type of surgery, were reported from one plan, which cost $300,000 to operate. These figures do not account for contemporaneous alternative medical or

surgical treatments, costs to the patient such as time costs, and, most important, downstream medical and surgical costs. The sentinel effect was reported to be the principal benefit of the SSOP, although how this was determined is unclear.

McCarthy, Finkel, and Kamons (1977) analyzed the Cornell data further, looking at the differences between board and non-board certified physicians in the rendering of opinions. When comparing the performances of the initial diagnostic physician by board certification, they found that there was no statistical difference between board certified and non-board certified initial diagnostic physician. In what seems a contradictory position, they add that their program has educated consumers to recognize the value of board certification as a criterion of excellence and that those confirmed for surgery repeatedly request that a board certified physician perform the procedure.

Indirect savings or benefits from an SSOP are calculated by these researchers and include estimated savings from forgone mortality, work loss days, disability days, and restricted activity days. (No actual savings figures were provided in this article.)

McCarthy, Finkel, and Kamons also tracked the number of patients who requested a third opinion, an option available to them under this SSOP. Only 16 of the 4700 patients in the study had requested a third opinion.

Ruchlin, Finkel, and McCarthy (1982), using a telephone-administered survey for a mandatory SSOP for a Taft-Hartley benefit fund, reported on the efficacy of SSOPs, focusing on those who were nonconfirmed for inpatient surgery. A comparable number of those who were confirmed was used as a control against which to determine costs, and each group was followed for a one-year post-consultation period. The lack of equivalence between the two groups renders any inferences questionable. Indeed, the researchers noted that the control group was not optimal and that they would not be able to answer the question of whether their program reduced the incidence of surgery.

Ruchlin, Finkel, and McCarthy devised four groups of nonconfirmed patients: no surgery, modified/alternative surgery, medical treatment and then original surgery, and originally recommended surgery. The

study treated any recommendation emanating from the consultation process that could potentially lead to reduced health care expenditures, such as ambulatory surgery, as a nonconfirmation of the original recommendation for inpatient surgery.

Cost calculations included program administration costs and expenditures related to rendering a second opinion. Nine categories of savings were created, and the benefit calculations included the avoidance of work loss and restricted activity days. Medical and surgical costs past one year were not included in this analysis. Total program savings of $534,971 were estimated (medical care = $361,756 and productivity savings = $173,035) and the cost of the program was estimated at $203,300, resulting in a benefit/cost ratio of 2.63. The 2.63 benefit/cost figure, however, omits a number of factors:

- The cost of the second opinion, which would tend to lower the number;
- Downstream medical and surgical costs which, if included, would tend to lower the number;
- The failure of health center physicians to always bill for coinsurance, which means the program savings are somewhat overstated and that the 2.63 number is too high; and
- The failure of teaching hospitals to bill for the surgery, which would also overstate the savings.[3]

These researchers concluded that their study supports the hypothesis that those who are nonconfirmed and do not seek either medical or surgical care are indeed surplus surgery. They add that 90 percent of the individuals who elect surgery in the 12 months following a second opinion will do so within six months of that opinion and so draw the inference that the vast majority of medical care costs and productivity losses occur within one year.

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[3]The authors believe that the net effect of these four biases underestimate the savings, but it is not clear why.

The conclusions that these researchers draw from their study do not appear to be warranted by the data. The hypothesis that those who are not confirmed for surgery and who do not seek medical or surgical treatment constitute surplus surgery has to be weighed against the findings of an earlier study on the Cornell SSOPs indicating that there is a population that receives two confirming opinions for surgery that nevertheless does not obtain such surgery (McCarthy and Finkel, 1978).[4] Hence, many of those who were not confirmed would not have been operated on in any event. Further, because their followup period was for only one year, the conclusion that the vast majority of medical care costs and productivity losses occur within one year of the consulting opinion is speculative.

The Grafe et al. (1978) study looked at both voluntary and mandatory programs at Cornell, following patients at six-month intervals for a two-year period. The diagnosing physician participating in the Cornell programs may or may not be board certified; the consulting physician must be board certified. Over a six-year period (February 1972 to January 1978), 7053 patients were evaluated for proposed elective surgery; 27.6 percent of these recommended operations were not approved. Grafe et al., using a sample of 318 patients evaluated for elective surgical procedures, studied the distribution of those not confirmed according to the board status of the initial diagnosing physician and found that the board status of the initial diagnosing surgical specialist was unrelated to the percentage of surgery that was not confirmed. Grafe et al. found that the subspecialties of orthopedics and gynecology demonstrated the highest rates of nonconfirmation; the most common reasons for not approving these operations were absence of pathology and failure to use medical therapy when indicated. We discuss some of the problems with the analysis of nonconfirmations in a subsequent section of this Note.

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[4]All studies should, but do not always, take into account that the first opinion and the second opinion, whether confirming or nonconfirming, could be in error. The potential for error may well increase when any physician, as opposed to a specialist, renders the opinion(s).

Pauly (1979) looked at the issue of unnecessary surgery in a larger context, but drew examples from New York studies that make his work relevant to this discussion. Pauly used the concept of necessity, which was not clearly defined in Congressional hearings about unnecessary surgery in the mid-1970s, to point out that definitions used to offer policy advice are seriously deficient, so much so that the advice is often not legitimate. Given our present state of knowledge, he added, we often cannot say what is or is not necessary. To move the debate about unnecessary surgery out of the realm of pure conjecture, Pauly proposed the following definition of the necessity for a procedure: A procedure is unnecessary if, on balance, it makes the individual worse off.[5]

Pauly pointed out the need for a control group in SSOP evaluation and related studies, noting that without a control group one would not know how many of those not confirmed for surgery would have had such surgery in the absence of a second opinion program.

Pauly drew from previous New York studies to make the point that projections developed from New York results may be misleading because New York has a much higher rate of surgical procedures than the country as a whole. The critical deficiency of using SSOPs for estimating unnecessary surgery is that they are nothing more than opinion surveys and the results only tell us that in the case of elective surgeries, physicians have different opinions. Pauly noted that physicians' opinions are not necessarily decisive because there is no evidence that either the referring or the consulting physician attach appropriate weights to all of the consequences and the resource costs. This point is relevant to the discussion of patient utility below.

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[5]Pauly notes that necessity is not the only aspect of a procedure that may be relevant; using surgical rather than nonsurgical treatment for an illness distributes income toward surgeons, and the equity of this transfer, he adds, may be questioned. However, if alternative therapy involves the use of other kinds of physicians or imposes costs on consumers, it is unclear how the equity judgment should be made.

PROGRAM FOR ELECTIVE SECOND SURGICAL OPINION

The Program for Elective Second Surgical Opinion (PRESSO), a voluntary program sponsored by Blue Cross and Blue Shield of New York, was evaluated by Joffe (1980) on a preliminary basis after its first 20 months of operation. Joffe's savings calculations, reported at $600,000 for the study period, were rudimentary; they did not take into account the estimated $350,000 in program costs, the costs for alternative medical or surgical treatments, or downstream medical and surgical costs.

NEW YORK CITY EMPLOYEES PROGRAM

A voluntary program instituted largely as a cost containment strategy for New York City government was evaluated by Paris et al. (1979), who were especially interested in nonconfirmation rates. Paris et al. found a high degree of agreement between the diagnosing and consulting physician (85.5 percent), but were unable to determine the costs and benefits of the program because of the lack of data on the medical expenditure experience of patients deferring and proceeding with surgery as well as health outcomes. They point out that for many conditions, it is not clear that medical treatment on a long-term basis is preferable to an attempt to effect a surgical cure.

NEW YORK AND MICHIGAN MEDICARE DEMONSTRATION

For a three-year period, beginning in 1978, voluntary SSOPs sponsored by Blue Cross/Shield were available to Medicare beneficiaries in Detroit and in New York City to test Congress' interest in the cost-cutting potential of SSOPs. The second opinion program paid the entire cost of the second opinion (waiving the deductible and coinsurance); thus the beneficiary incurred no cost for the consultation. Despite the fact that the patient did not have to pay for the second opinion, Poggio et al. found a very low participation rate (less than 2 percent), and they found that at least 65 percent of the New York program participants would have obtained a second opinion regardless of the existence of the program.[6] In both the New York and the Michigan programs, the costs,

[6]The patient survey that provided the data for estimating the number of program participants who would have obtained a second opinion regardless of the existence of an SSOP was done only in New York.

which did not even include downstream medical and surgical costs, exceeded the benefits.

V. OTHER STUDIES RELEVANT TO SSOPS

Rutkow et al. (1979) conducted a randomized controlled trial to determine agreement/disagreement patterns among surgical specialists for seven procedures frequently covered by SSOPs.[1] Case studies were mailed to board certified specialists, and the results showed that opinions rendered differed to a major degree. Rutkow's study notes that the reliability of observations or clinical opinions is different from the accuracy of these opinions. These researchers found that physicians with more training relative to the procedures under consideration agreed more often than physicians with less training.

The cost saving potential for providing second opinions to candidates for coronary artery bypass grafts (CABG) was studied by Graboys et al. (1987), who followed 88 self-selected patients for an average of 28 months. The study population was derived from 91 consecutive patients with coronary artery disease referred between December 31, 1979, and May 23, 1984. A program of medical therapy, as opposed to surgical intervention, was recommended for 74 of the 88 patients. Sixty patients chose the medical therapy option. There were no fatalities in this group over a 27.8 month period, though two patients experienced myocardial infarctions. The remaining 14 patients elected to cross over to surgical therapy at an average of 11.3 months from the second opinion; these patients were followed for 24.7 months. None of these patients died; four experienced myocardial infarctions--three before surgery and one following coronary bypass.

After extrapolating data from other sources,[2] these researchers

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[1]These procedures are breast surgery, varicose vein surgery, cholecystectomy, hysterectomy, tonsillectomy and adenoidectomy, cataract extraction, and prostatectomy.

[2]Graboys et al. cite the National Heart, Lung and Blood Institute estimate of the number of bypass procedures that could be avoided each year in the work by C. Lenfant and C. A. Roth, "Advances in Cardiology and Escalating Costs to the Patients: A View from the Government," *Circulation*, Vol. 71, 1985, pp. 424-428.

suggested that as many as 25,000 of the estimated 200,000 bypass procedures performed annually could be avoided, with savings in excess of $500 million. The researchers concluded that second opinions for CABGs have merit and that a large proportion of patients will adhere to a recommendation against surgery provided that adequate psychological support, reassurance, and communication with local physicians is carried out. However, costs associated with this alternative medical therapy, including substantial monitoring and consultation costs, were not included in Graboys et al.'s accounting.

VI. SUMMARY OF FINDINGS FROM REVIEW OF THE LITERATURE ON THE ABILITY OF SSOPS TO REDUCE COSTS

An array of research efforts have attempted to address questions of the effects of SSOPs on cost. In this section we will integrate the findings of these studies.

Evaluators have identified the following findings regarding the cost savings potential of SSOPs:

- Voluntary programs do not have much, if any, cost savings potential.
- Mandatory programs are claimed to have some documented savings potential, but such claims should be treated with skepticism. None of the studies reviewed used a randomized control group, and there are potential biases in all the control groups actually used. Some studies do not even use a control group. Additionally, accounting is not comprehensive, and the omissions make SSOPs look more favorable. The costs of administering the program or of providing alternative therapies to surgery, for example, have frequently not been counted. Downstream medical and surgical costs, appropriately discounted, must be an integral part of the cost calculation; none of the studies reviewed had adequately addressed downstream costs. Their inclusion would almost certainly make SSOPs look less favorable.
- The real "savings" attributed to SSOPs derive from their indirect effects in discouraging or preventing surgical procedures. This conclusion, however, has been claimed without a true control group and must be treated with caution. Even if the effect were real, nothing is known about any health consequences of these indirect effects. The evaluators themselves urge that this area be much more carefully researched before final conclusions are drawn about the desirability of SSOPs.

VII. THE LITERATURE'S FINDINGS ON QUALITY OF CARE AND ACCESS

QUALITY ISSUES RELATED TO SSOPS

Although there is little consensus on what constitutes quality of care and how it should be measured, a number of quality-related issues surface in the consideration of SSOPs. We focus on five such issues:

- Influence of a patient's utility on determinations of appropriateness of surgery;
- Physician decision errors;
- Whether all physician consultants should be board certified;
- If high nonconfirmation rates signal unneeded or inappropriate surgical procedures; and
- Whether low rates of surgery in one geographic area suggest higher quality of care than higher rates for the same surgery in another area.

Effect of Patient Utility on Appropriateness

Recognizing that patients may differ in their tradeoffs between quality and quantity of life, McNeil et al. (1981) designed a study in which healthy males were asked, if given a diagnosis of carcinoma of the larynx, whether they would choose radiation treatment or surgery. The two therapies differ considerably in their effects on quality of life. The researchers were able to develop utility curves that describe patient preferences under varying sets of circumstances, and they concluded that patients' attitudes toward morbidity are important, because survival is not their only consideration. They suggest that attempts should be made to incorporate patients' attitudes toward the quality and quantity of life into the decisionmaking process, which includes decisions about whether to proceed with surgery. In other words, at least in some instances patient preferences should determine whether surgery is appropriate; a physician reviewing a chart cannot necessarily determine appropriateness.

Physician Decision Errors

The potential for error in the diagnosing and the consulting physicians' recommendations for surgery can have a substantial influence on the value of a second opinion program; indeed, the presence of a second opinion program may lead to greater error than its absence. This is especially likely to occur if the consulting physician is as liable to err as the diagnosing physician.

To demonstrate the potential for a second opinion program to make matters worse, we have created a hypothetical pool of 1000 patients. We assume that if patients were fully informed and thought deeply about their utility functions, the decision they would reach about surgery would make them best off in an ex ante sense; we take this to be the correct decision.

All of the patients are seen by Diagnosing Physician D, and all those confirmed for surgery are seen by Consulting Physician C. Each physician errs 20 percent of the time, including Type I errors (confirming an incorrect recommendation) and Type II errors (not confirming a correct recommendation). Of the hypothetical 1000 patients, we assume that 800 should receive surgery and 200 should not. We assume that patients always follow the recommendation they hear last. This last assumption is important to our results.[1] For example, if a confirming second opinion increases the probability of surgery (relative to no second opinion) in a case where surgery is indicated, there would be a gain that we do not consider. The reader can readily insert other assumptions about the proportion of patients who should receive surgery, the percentage of error by both physicians, and the likelihood that patients follow recommendations. The figure illustrates the potential for error in this scenario.

In this hypothetical situation, where of 1000 patients, 800 should have surgery, the following occurs:

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[1]If patients act in accordance with Bayesian decision theory, as opposed to mechanically following the recommendation they heard last, and if the second opinion contains new information, one can show that the second opinion will improve matters.

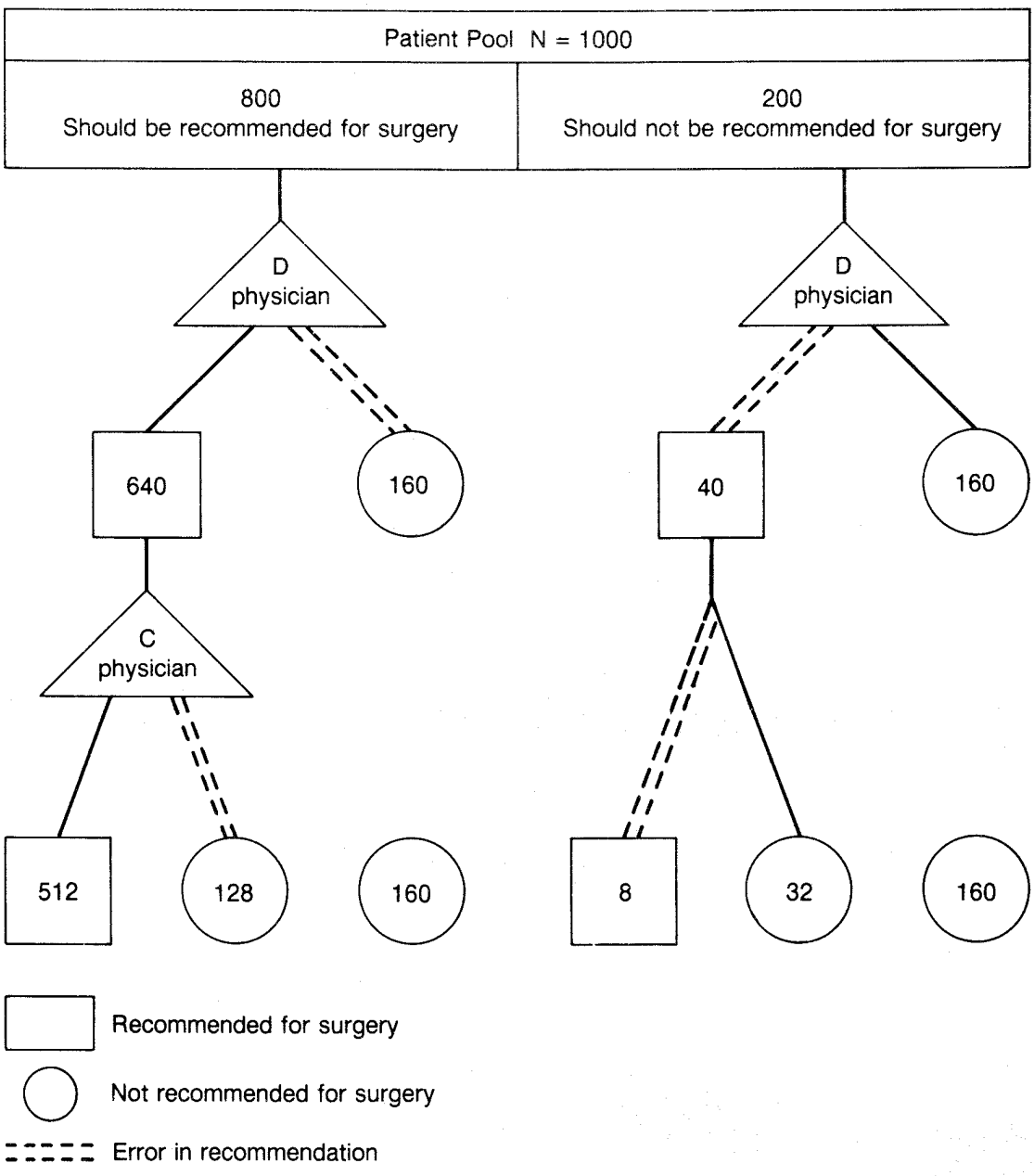

Fig. 1—Potential for error in surgical opinions

- 512 of those who should have surgery actually get two positive opinions; and
- 160 of those who should not have surgery get one negative opinion.

Thus, only two-thirds of the patient pool have no incorrect information. Of the third who get some incorrect information:

- 128 of those who should have surgery get one positive and one negative opinion;
- 160 of those who should have surgery get one negative opinion.
- 32 of those who should not have surgery get one positive and one negative opinion; and
- 8 of those who should not have surgery get two positive opinions.

If all patients follow the recommendations they hear last, a key assumption, the second opinion program has *increased* the number of errors from 200 (200 = 160 + 40) to 296 (296 = 128 + 160 + 8). If the consulting physician is more reliable than the diagnosing physician and makes only 5 percent errors, however, the total number of errors slightly decreases, from 200 to 194. This illustrates the importance of the error rate by consulting physician relative to the first physician.

Board Certification of Physicians Participating in SSOPs

Board certification suggests that a physician has proceeded to the highest level of training possible and therefore is best prepared to provide care in the area(s) for which he/she is certified. Section 9432 of P.L. 99-509 requested information on the numbers of board eligible or board certified physicians who provide care and services as well as second opinions in mandatory SSOPs to Medicaid patients, presumably as an indicator of the quality of care those patients might be receiving.[2] The absolute number of board certified physicians by itself, however, is

[2]The physician giving the second opinion is precluded by many, if not most, SSOPs from performing the operation.

not very useful; rather, the total number of physicians or the total number of board certified physicians is needed to estimate a percentage of physicians serving Medicaid patients.

Data on the board eligibility of physicians are not tracked by any central source. Some state Medicaid programs do not require that physicians participating in their SSOPs be board certified and do not keep records that distinguish between board certified and noncertified participants in their programs. Michigan at one time required that the consulting physician be board eligible or board certified; the state dropped this requirement for a time but reinstituted it in November 1987. The report on the survey of mandatory Medicaid SSOPs (Lindsey, 1989) provides data on board certification requirements of those states with mandatory programs.

The literature on the importance of board certification is conflicting. Some studies have detected no difference between the findings of board certified and noncertified physicians who provide the diagnostic or first opinion (McCarthy, Finkel, and Kamons, 1977). On the other hand, Rutkow et al. (1979), in their study on surgical decisionmaking, found that physicians with more training relative to the procedure(s) under question agreed more often than physicians with less training. Although this does not prove that the surgeons with more training make better decisions, it is suggestive. The guidelines developed by the American College of Surgeons for second opinion programs recommend that the second opinion be rendered by a board certified specialist in the appropriate field of surgery (Lance and Haug, 1978).

There does not appear to be a dearth of board certified surgeons in rural areas at this time (Schwartz et al., 1980; Newhouse et al., 1982), and some studies argue that there is little or no justification for nonboard certified surgeons to continue to do surgery in the face of an adequate number of board certified physicians in most parts of the country (McCarthy, Finkel, and Kamons, 1977; Moore, 1970). The number of board certified physicians increased an estimated 23 percent from 1969 to 1977 (Mitchell and Cromwell, 1982) and an estimated 25 percent from 1981 to 1986.[3] As of the mid-1970s, at least three-quarters of all

[3]Based on the number of physicians certified by their corresponding board only, as reported in the annual editions of the *AMA's Physician Characteristics and Distribution in the U.S.*

major surgical procedures were performed by board certified surgeons and their residents (Moore et al., 1978), and the current figure is no doubt higher.

Nonconfirmation Rates and the Need for Surgery

The percentages of time that a second opinion does not confirm the first--the nonconfirmation rate--has been interpreted by some as an indication of unnecessary or inappropriate surgical procedures that are averted by the presence of an SSOP. The literature shows that about one-third of those who voluntarily seek second surgical opinions and about 18 percent of those required to obtain a second opinion are told that there is no need for the proposed surgery (McCarthy and Widmer, 1974). In both voluntary and mandatory programs, patients whose surgery needs are confirmed are roughly twice as likely to undergo surgery as those who receive nonconfirmations.[4]

Nonconfirmation rates differ by procedure. Evaluations of the Cornell programs show that the highest nonconfirmation rates were for orthopedic surgeries (41 percent) and for gynecological surgeries (40 percent). The most common reasons cited for nonconfirmations were the absence of pathology and the failure to use medical therapy when indicated (Grafe, 1978). In the Massachusetts Medicaid program, the highest nonconfirmation rate was for laminectomy (19 percent) and the lowest rate for cholecystectomy (4 percent), probably because of the ease with which it can be diagnosed and the amount of medical consensus on indications for the procedure (Poggio et al., 1985). The most common reason offered for the nonconfirming opinion was that further diagnostic studies should be undertaken (38 percent) and the second most common reason, that medical management should be attempted before surgery.

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[4]Poggio et al. (1985), on the basis of their review of a number of SSOPs (before undertaking their own evaluation of the Massachusetts CPES, the Medicare demonstrations, and the National Second Surgical Opinion Program), reported that the surgical rate for confirmed cases in mandatory programs is usually close to 90 percent, whereas the rate for nonconfirmed cases is less than 40 percent. In voluntary programs, the rate for confirmed cases is at least 60 percent, whereas the rate for nonconfirmed cases is less than 30 percent.

Joffe (1980), in evaluating a voluntary SSOP, found that the most frequently disputed initial recommendations for surgery were for orthopedic and urologic surgical procedures. The highest rates of disagreement were among urologists, and the lowest among general surgeons. Joffe found a statistically significant difference in nonconfirmation rates at either the 0.01 or 0.05 level, analyzed by surgical category,[5] type of procedure, and sex.

How should nonconfirmation rates be interpreted, and how indicative are they of the phenomenon of surplus surgery? Paris et al. (1979) carefully examined the way that opinions, interpreted as nonconfirming, were worded and found that physicians who shared the same outlook on a case might well render opposing outcomes, e.g., in a situation where both physicians believe that surgery should be performed if the outcome of a particular test is positive, one physician might report his/her opinion as "the need for surgery is not confirmed unless/until test results are positive," whereas the second surgeon might state his/her opinion as "the need for surgery is confirmed as long as the test results are positive." Poggio et al. (1985) emphasizes the weakness of the binary concept of confirmation/nonconfirmation for capturing the nuances of a consultant's recommendations and the complexities of a patient's decisions about surgery.

Factors affecting nonconfirmation rates have been explored in at least two major studies (Paris, 1979; Poggio et al., 1985). Paris found a firm rejection of surgical intervention in only 8 percent of the cases he reviewed. The factors influencing nonconfirmation rates, according to his study, were:

- Is the program mandatory or voluntary?

  Paris cited McCarthy and Kamon's finding (in a paper presented before the American Federation for Clinical Research in New Jersey on May 2, 1976) of wide variations in nonconfirmation rates obtained by administratively

[5]We assume that Joffe means surgical specialty--urology or orthopedic surgery, for example.

identical programs, depending on whether consultation was made mandatory.

- How emphatic is the original recommendation for surgery?

  Twelve percent of the patients that met the Paris et al. requirements for a second opinion had been mistaken in their belief that surgery had actually been recommended by the original physician. Other patients received ambiguous initial recommendations, which were verified when a written statement about the recommendation had been received from the original physician.[6]

- What is the specialty of the physician who made the initial recommendation for surgery?

  Paris et al. described a normal screening process, including rejections, that surgeons undertake for community physicians, but added that equating a nonconfirmation made by a surgeon following a first opinion by an internist with unnecessary surgery is untenable.

Paris concluded that SSOPs do not measure deviation from abstract standards but rather dual observer perceptions of proper patient care, and he cautioned against assuming that all who receive negative second opinions should have had surgery in the absence of an SSOP.

Poggio et al. (1985) identified four factors that influence the congruence between first and second opinions:

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[6]Joffe (1980) reached a different conclusion. Because the majority of the SSOP participants in the PRESSO program did not want the first opinion surgeon to be informed of their visit to a surgical consultant, Joffe's study had to rely on self-reported data for information on initial surgical recommendations, a concern in terms of the accuracy of patient perceptions, the strength of the surgical recommendation, and the completion of diagnostic tests. Joffe reported that, even assuming that 10 percent of the nonconfirmed patients erroneously reported as a definite surgical recommendation a discussion that would never have become a concrete prescription for surgery, the nonconfirmation rate would have been reduced less than three percentage points. Joffe therefore concluded that self-reported data had little effect on evaluating this SSOP.

- The patient's condition.

  Some patients will present with conditions in which surgery is clearly indicated, whereas others may present with conditions in which surgery is either contra-indicated or the indications are unclear. Patients for whom surgery is clearly indicated should have higher confirmation rates than others.

- The extent to which the first and second physicians' medical training and surgical philosophies are similar.

  Surgeons with similar training and/or surgical philosophy should be more likely to resolve ambiguities in a similar fashion, and have higher confirmation rates, than surgeons with dissimilar training or philosophies.

- The extent to which the first physician gains financially from performing the operation and the extent to which the physician allows this gain to influence his/her decision.

  Surgeons who allow such incentives to influence their recommendations to patients may be less likely than others to have their recommendations for surgery confirmed by others.[7]

- The extent to which the patient wants to avoid surgical procedures, and other attitudes the patient has about health care.

  If a patient does not want to have a surgery, he or she may understate the extent of discomfort when describing the condition to a consulting surgeon. If the indications for surgery are ambiguous, this may lead the consulting surgeon not to confirm the desirability of surgery. A patient with a condition of identical severity who complained loudly about the extent of pain might receive a confirmation. Of course, the second opinion program may

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[7]Based on the report of a Gallup national survey in 1980, 71 percent of the American public feels that surgeons' financial incentives are a main factor contributing to unnecessary surgery.

be functioning properly in these cases; because of the relevance of patient preferences, the correct decision in the first case may be no surgery and in the second case may be surgery.

Three additional findings of the Poggio et al. study are important in evaluating nonconfirming opinions. They found that discussion between the first and second physicians significantly decreased the likelihood of nonconfirming opinions. Second, the more recently the second physician had graduated from medical school, the more likely he/she was to confirm the need for surgery. Finally, surgery was less likely to be confirmed among older patients than among younger patients. The Poggio et al. study also pointed out the importance of including the category of "no treatment necessary" cases as nonconfirmed, because there are many cases in which neither surgery nor other treatment would improve the patient's condition.

The issue of the reliability of second opinions has also been examined by several researchers (McCarthy and Finkel, 1981; Ruchlin, Finkel, and McCarthy, 1982). Reliability for normal situations is higher than for abnormal situations and agreement for yes/no judgments is higher than that for judgments made according to continuous or qualitative scales, according to these researchers.

Relationship of Surgery Rates to Good Care

High rates of surgery for a specific procedure in one geographic area, when compared with substantially lower rates for the same procedure in another area, lead some to conclude that unnecessary surgical procedures are being performed in the area with higher rates. Variations in the rates of surgical and medical procedures have been the subject of numerous studies in this country as well as in other medical systems. Bunker (1970), one of the first researchers to examine the question of variations in surgical procedures, concluded that indications for surgery are sufficiently imprecise to allow for a 100 percent variation in the rates of operations.[8] Pauly (1979) adds that we cannot, at present, given the current state of knowledge, reject the

[8]Bunker does not explain the derivation of this figure.

hypothesis that surgery is approximately as good as nonsurgical forms of treatments for many of the symptoms that prompt such surgery. Research subsequent to Bunker's pioneering work indicates that assuming that a high elective surgery rate reflects a poor standard of practice is much too simplistic a conclusion for this complex matter (Roos et al., 1977).

Rutkow (1979) pointed out that a high rate of surgery does not necessarily mean that too many procedures are being performed and a low rate may indicate that not enough surgery is being done. LoGerfo (1977) noted that, judging by the work of Roos and others, we cannot place an implicitly positive value judgment on lower rates of surgical care.

Using three panels of physician experts, Park et al. (1986) were able to demonstrate that physicians can rate the appropriateness of large numbers of indications for performing six medical and surgical procedures, producing much more detailed and comprehensive standards or guidelines than had been previously produced. The six procedures were coronary angiography, coronary artery bypass graft surgery, cholecystectomy, upper gastrointestinal endoscopy, colonoscopy, and carotid endarterectomy. The researchers, using physician experts' assessments, established three useful categories of indications: clearly inappropriate, equivocal, and clearly appropriate.

Chassin, Kosecoff, and Park (1987) used these three categories to study the appropriateness of using coronary angiography, carotid endarterectomy, and upper gastrointestinal tract endoscopy in high and low use areas. These researchers found that the proportions in each category were similar in areas of high and low use, and concluded that differences in appropriateness cannot explain geographic variations in the use of these procedures.

ACCESS ISSUES RELATED TO SSOPS

Section 9432 (b) (1) (E) (i-ii) of P.L. 99-509 requests information on whether mandatory SSOPs impede access to necessary care and services and on the measures states have taken to address such impediments, particularly in rural areas.

Ways in which mandatory SSOPs might inhibit access include forcing patients to travel unusual distances to seek second opinions or care, delaying the patient from receiving immediate care by requiring him/her to take time to obtain a second opinion, or by deferring necessary surgery when a second opinion does not confirm the first. Lance and Haug (1978) argue that mandatory programs that reduce coverage based on a second negative opinion may be construed as interfering with a patient's "rights" to decide on the type and timing of treatment (assuming the patient does not voluntarily cede that right in selecting a managed care plan).

The Massachusetts CPES program, mandatory for Medicaid patients, has attempted to to avert any hindrances to care through a waiver system, using waivers for patients:

- Who are in pain or at risk;
- Who live more than 15 miles from the nearest consultant; and
- Whose participation would entail some undue burden.

Poggio et al. (1985) determined that 6 percent of all cases received hardship waivers.[9] Four procedures accounted for a disproportionate share of the waivers: hysterectomy, cholecystectomy, laminectomy, and hemorrhoidectomy. Travel hardships accounted for only 4 percent of all waivers issued. Data from Massachusetts, however, may well not be representative of more sparsely populated states or states with fewer physicians.

Williams et al. (1983) found that over 80 percent of the people who do not live in towns or who live in towns of fewer than 25,000 population were within 25 miles of a board certified general surgeon as of 1979. The study was based on the location of physicians in all or parts of the following states: Maine, New Hampshire, the most northern

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[9]Gertman et al. (1980) indicated that 10.5 percent of the CPES population received waivers for endangering conditions; Poggio et al. are referring specifically to waivers for difficulty in accessing a provider for a second opinion.

part of New York, Vermont, Wisconsin, Minnesota, the upper peninsula of Michigan, Idaho, Montana, North Dakota, South Dakota, Wyoming, Alabama, Arkansas, Louisiana, and Mississippi. In light of the findings for these states, the percentage of the population having access across the country as a whole would undoubtedly be much higher.

It has been suggested that mandatory SSOPs may inhibit access by introducing unnecessary delays when a patient seeks care. For those obtaining at least one consultation under the CPES, the average time spent going through the program was 18 days (Poggio et al., 1985).

Kane et al. (1978) examined the pattern of surgical performance for 15 selected procedures in Utah, using Medicare and Blue Cross/Blue Shield data for a one-year period. Although the study was not linked to an SSOP or to how SSOPs inhibit access of rural patients to services, it found that the use of surgical services by rural and urban residents was strikingly similar.[10] This caused the authors to conclude that "the problem of access may be less acute than imagined by many health planners."

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[10]The researchers found a reluctance on the part of the rural resident to travel to an urban hospital, although for most procedures, at least a third of the rural patients had surgery in urban hospitals. More rural residents were treated in a rural hospital than were treated in an urban hospital for most procedures (except gastric resection, laparotomy, transurethral resection, thyroidectomy, and vein stripping). For all 15 procedures studied in the year's data, urban physicians operated in rural hospitals in only 3 percent of the total cases.

VIII. CONCLUSIONS AND RECOMMENDATIONS

No single study reviewed met all or even most of the criteria for an ideal or definitive study of how SSOPs affect cost and patient outcomes. Poggio et al. uses the most comprehensive definition of cost, examines cost and outcomes over the longest period, and uses a more plausible control group than the other studies. Hence its findings are the most convincing in the literature:

- Among the Medicaid population in Massachusetts, the direct effect of an SSOP is small to nonexistent; the best estimate is that surgical rates were reduced 2 percent, but it is not known whether this is significantly different from zero;
- The indirect or sentinel effect of the program is estimated to reduce surgery rates by 24 percent, but the method for inferring this value, a comparison of surgery rates in Massachusetts and Connecticut, is open to question; a host of other factors may have caused rates in the two states to differ.

The Poggio et al. study does not fully account for downstream medical and surgical costs, nor, as the authors point out, does it estimate the extent of the indirect effects on patient outcomes. Over and above these limitations, findings among a Medicaid population may well not generalize to the population at large. Given relatively low Medicaid fees, physicians may be more reluctant to recommend surgery; alternatively, the relatively poorly educated Medicaid population may respond differently to physician recommendations than would a general population, and that in turn may even cause physicians to alter their recommendations. Utilization review in the Massachusetts Medicaid program in the late 1970s may differ from those techniques now used in the general population. In short, the literature does not provide definitive answers about the desirability of SSOPs.

The best way to determine an SSOP's ability to reduce health care costs and the beneficial or adverse effects of such a program on patient outcomes is to conduct a randomized study that examines both direct and indirect effects of the program. Such a study could determine what part of the population would seek a second opinion regardless of the existence of a program, how many people would not undertake surgery without a second opinion, and how much surgery is deferred rather than avoided altogether; it could also assess health outcomes.

Appendix

HISTORY OF CONGRESSIONAL INTEREST IN SSOPS

The development of the first voluntary and mandatory SSOPs in 1972 in New York coincided with Congress's emerging interest in health care cost containment. The increase in insurance afforded by the Medicare and Medicaid programs had resulted in increased use and thus costs to both the federal and state payors for these programs. One provision of the 1972 amendments of the Medicare act was the establishment of Professional Services Review Organizations (PSROs), charged with reviewing the appropriateness and quality of inpatient care for Medicare patients. States such as Massachusetts turned to the PSRO organizations when they established their SSOP, using these organizations to provide desk audits or to arrange for a personal consultation on the necessity of the proposed elective surgery.

By 1974, early reports of the New York programs were circulating among decisionmakers (McCarthy and Widmer, 1974), generating special interest in Congress, which was considering ways to contain Medicare and Medicaid costs. During 1976 and 1977, the U.S. House of Representatives Subcommittee on Oversight and Investigations, known as the Moss Subcommittee, heard testimony regarding unnecessary surgery, SSOPs, and the surgeon surplus. The McCarthy and Widmer finding that the need for a proposed new surgery was not confirmed by a board certified consultant for over 30 percent of persons who voluntarily sought a second opinion was used by Congress as evidence that millions of people in the United States were undergoing unnecessary surgery (Gertman et al., 1980). Their finding that the second opinion was adverse to surgery for 18 percent of those patients referred for surgery in a mandatory program was used for nationwide projections of the extent of unnecessary surgery (Pauly, 1979). There was no precise definition of what constituted "unnecessary surgery" during the hearings. Much of the testimony favored the view that unnecessary surgery could be determined by expert

opinion. For the kinds of procedures whose rates vary widely, however, the experts do not agree on indications for this surgery (Pauly, 1979).

In January 1976, the Subcommitte on Oversight and Investigations of the House Committee on Interstate and Foreign Commerce issued a report entitled "Cost and Quality of Health Care: Unnecessary Surgery" in which they observed (Friedlob, 1982):

> Unnecessary surgery wastes lives and dollars. The committee estimated that 2.4 million unnecessary surgeries were performed in 1974 at a cost to the American public of $4 billion. These unnecessary surgeries were claimed to have led to 11,900 avoidable deaths.
>
> Second consultations before surgery could cut down significantly on unnecessary surgical procedures. The Department [of Health, Education and Welfare] should promptly institute a program of independent second professional opinions to confirm the need for elective surgery underwritten by Medicare and Medicaid. Such a program would save the government millions of dollars.
>
> The second opinion program should be carefully evaluated to determine the impact on quality of care, the containment of health care costs, the percentage of surgical procedures deemed unnecessary, and the costs of administering such a program compared with the cost of unnecessary procedures.

Executive agencies, too, extrapolated from these data the losses they believed public programs such as Medicare and Medicaid experienced as a result of unnecessary surgery. Lance and Haug (1978) trace the origins of a projected $655 million loss resulting from unnecessary surgery included in a HCFA Fraud and Abuse Work Plan:

> The Inspector General's Office reviewed the Moss Subcommittee on Oversight and Investigations report on unnecessary surgery and testimony from related hearings in 1977 and began with the report's 17 percent figure for unnecessary operations. This figure had been erroneously derived from the figure for nonconfirmation in McCarthy's preliminary study of two New York union second surgical opinion programs. The IGO also recognized the figure published by Emerson citing one percent unjustified operations. Acknowledging the controversial nature of both figures, the IGO took the average of these two figures, 8.5 percent. This figure was then used as their estimate of the percentage of unnecessary operations in the United States. The IGO then attributed one-third of the

Medicare and Medicaid costs in 1977 to expenditures for surgery and multiplied that figure by 8.5 percent to arrive at $655 million in losses to HEW due to unnecessary surgery.

Despite what have since been identified as errors in interpretation and misuse of data that may have misrepresented the potential of SSOPs, Congressional and executive department interest remained high. In September 1977, HCFA awarded contracts to the Michigan and New York Blue Shield programs for three-year demonstration projects to determine the feasibility of second opinions for the Medicare population.

In October 1977, Health, Education and Welfare Under Secretary Hale Champion noted in Congressional testimony that surgery rates in the United States remain "intolerably" high (Lance and Haug, 1978). HCFA issued guidelines to its regional offices for a National Second Surgical Opinion Program (NSSOP) in May 1978 (Lance and Haug, 1978). In September 1978, HCFA initiated the NSSOP, an information and referral service that was a response to Congressional concern about the appropriate use of surgical services. The NSSOP was implemented in two phases: The first phase was a widespread public information campaign to make consumers as well as providers aware of the potential for cost savings and reduced risks to patients who did not need to undergo surgery, and the second phase was to establish a series of referral centers where individuals could obtain the names of physicians willing to provide second opinions. According to then-DHHS Secretary Patricia Roberts Harris, the "information campaign can improve the quality of health care and help reduce unnecessary surgery.... When patients routinely seek second opinions for non-emergency surgery, the effect will be to encourage the practice of quality medicine and to discourage inappropriate procedures" (Galblum, 1980).

Poggio et al. evaluated the NSSOP and found that nearly three-quarters of the calls from a sample population were from those seeking a referral for a second opinion. Some 42 percent of the callers within the sample group had seen three or more physicians before calling the hotline for another referral. Approximately 60 percent of the sample proceeded to act on the referral by seeking an opinion from a physician

referred to them by the hotline. The evaluators estimated that the program had reduced the surgery rate among callers by about 1.1 percentage points.

The very low proportion of the eligible population to take advantage of SSOPs has always plagued efforts to evaluate these programs for their broader policy implications. The Michigan and New York Medicare demonstrations described above were no exception: 2 percent of Medicare eligible patients in New York sought second opinions, and about half of one percent in Michigan sought second opinions. Because Medicare beneficiaries are responsible for cost sharing, the question arose as to whether this additional cost to the patient inhibited him/her from seeking a second opinion. Under provisions of the 1980 Omnibus Budget Reconciliation Act (OBRA) legislation, the DHHS examined the desirability of waiving Medicare's cost-sharing requirements for second surgical opinions. The Department determined that waiving cost-sharing as an incentive for Medicare beneficiaries to voluntarily obtain second opinions did not appear to result in extensive use of the benefit (Friedlob, 1982).

Despite the difficulty in evaluating SSOPs, Congress maintained an interest in SSOPs as a cost-containment mechanism. In 1982, HCFA contracted with Abt Associates to provide a review of the relevant literature on SSOPs and to evaluate four specific programs. The Abt report concluded that only mandatory programs have potential for cost savings and among such programs, those without prescreening appear to be more effective than those using prescreening. The report concluded that there is specific evidence that mandatory programs result in substantial cost savings for the Medicaid program, which is a problematic conclusion for reasons noted in the text, especially the failure to account for downstream costs. Further, the Abt report concluded that there is evidence that, on average, Medicaid SSOPs have virtually no direct effect on health outcomes. However, it is the indirect effects that clearly account for any immediate reduction in surgical rates, and there is no information regarding the indirect effects of such programs on the health of patients.

Noting that HCFA had already spent $2.5 million to evaluate SSOPs, the Inspector General (IG) of DHHS in 1983 concluded that Medicare and Medicaid patients should be required to get a second opinion for surgery (*American Medical News,* April 15, 1983). The IG studied savings from the SSOPs in the Massachusetts, Michigan, and Wisconsin Medicaid programs and, projecting from these data for the rest of the country, concluded that there could be an average savings of $3.68 per Medicaid recipient or $63 million per year. The projected savings for the Medicare program would be $94.7 million per year, predicated on a program covering nine procedures and assuming an annual reduction of 18 percent in Medicare surgeries.

The IG's recommendation has not yet been fully implemented, and DHHS as well as Congress are still studying the issue. A second opinion program for Medicare patients was authorized by Congress in early 1986; recommendations are being developed within HCFA about the feasibility of such a program. The OBRA 1986 legislation (P.L. 99-509) prohibits the Secretary of DHHS from publishing final or interim regulations requiring a state Medicaid plan to include a program requiring second surgical opinions or a program of inpatient hospital preadmission review until 180 days after the report on these topics, required by this Act, has been submitted to Congress.

Although a federal requirement for SSOPs for state Medicaid agencies is temporarily precluded by P.L. 99-509, 12 state Medicaid agencies currently have mandatory programs, seven states have voluntary programs, and an additional 10 states have considered or are considering the institution of such a program.

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