

A RAND NOTE

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Services: Do They Have Any Clinical
Significance?**

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GEOGRAPHIC VARIATIONS IN THE USE OF SERVICES: DO THEY HAVE ANY CLINICAL SIGNIFICANCE?

by Robert H. Brook, Kathleen Lohr, Mark Chassin,
Jacqueline Kosecoff, Arlene Fink, and David Solomon

Prologue: *The primary role that private physicians have played in the design of government efforts to moderate the cost of medical care has been to take exception to the public intrusions into their professional world. Such railing, be it in the name of concern for patients, social equity, quality of care, professional freedom, or the vaunted reputation of American medicine is simply not enough. That, at least, is the strong message of Robert Brook and his colleagues at the Rand Corporation. Because physicians have not aggressively engaged the problem of constraining society's investment in medical care, the government's proposed solutions have been largely economically based; that is to say, they have sought to constrain rates of increase in the cost of services rather than identifying the most efficacious care and paying for it, and refusing to reimburse for treatments found ineffective. Brook and his colleagues say that physicians must undertake the close self-examination necessary to propose better allocations of medical resources, grounded in clinical insight and practice. Brook is a senior health services researcher at Rand and a professor of medicine and public health at the University of California, Los Angeles. Brook is well known for his research in the measurement of quality of care. He has served as director of the health status and quality of care components of Rand's health insurance experiment. More recently, he convened the first international meeting in March 1984 to explore with the experts of other countries the phenomenon of variations. (See UpDate in this issue, for a conference summary.) Brook is a member of the National Academy of Sciences's Institute of Medicine. All of the coauthors are affiliated with Rand. Lohr is a health policy analyst. Chassin is an internist who formerly worked for the federal Professional Standards Review Organization (PSRO) program. Kosecoff and Fink, both of whom hold Ph.Ds., are specialists in program evaluation, and Solomon, an internist, is former chairman of the Department of Medicine at UCLA.*

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The looming crisis of the 1980s in paying the nation's health care bill demands fresh approaches to solving problems in the use and cost of medical care. Policymakers today often find their contributions to such a problem-solving effort hampered by poor or conflicting information about the costs and benefits of medical care. Among the questions they find most difficult to answer is: "Why does the per person use of certain services (for example, an operation to remove a gallbladder) vary as much as twofold to sixfold across geographic areas such as the entire nation or specific regions of the country?" The geographic areas often are not perceptibly different in those characteristics of the population (the amount of gallbladder disease) or medical resources (the number of hospital beds) that are usually thought to explain variations in the use of services.

A number of questions derive from the one cited just above: Why do these variations occur? Do geographic regions with higher rates of use also have more appropriate use of services? Or less appropriate? Is health improved by higher procedure rates? Information to answer these questions is all but nonexistent.

In this article, we want to speculate on how the medical community might seek to know whether more medical care is better medical care by collecting information about the indications and outcomes of medical procedures and services. In particular, we seek to motivate the private practitioner, medical educator, and clinical researcher to search more forcefully and more diligently for the clinical knowledge that seems to be missing today in making policies affecting the distribution and use of medical care. We do not ask: "What if the profession were to fail in this endeavor?" We do ask: "What if it does not even take up the challenge?"

The Economic Paradigm

Many current proposals for rationalizing the use of medical care, or for stemming the nation's outlays for such care, derive chiefly from an economic model. These approaches include, but are not limited to, the following: (1) increase the amount of patient cost-sharing (deductibles, coinsurance rates, or both) in public or private health insurance so that people have a financial incentive to use fewer or less costly services; (2)

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change the tax laws so that people will pay directly for a greater percentage of their insurance premium, thereby encouraging them to select less generous insurance plans and, again, use fewer or less costly services; (3) create incentives for “socially desirable” competition by promoting alternative medical care delivery systems; (4) link health insurance premiums to the costs of care in “small” geographic areas (for example, areas defined by the residence locations of patients using a given hospital), thereby encouraging persons with high medical costs to moderate their demand for care; (5) pay physicians a salary or on the basis of fixed, that is, negotiated and preset prices for their services; (6) place ceilings on the supply of physicians (or hospitals, or services, or money) in the health care system and search for some bureaucratic or “global” budget mechanism to divide the available resources among various claimants; and (7) enact administrative rules for public programs that indirectly keep physicians’ fees low or pay them only very tardily, or that directly restrict patient eligibility or benefits.¹

This list of economic (as contrasted with medical) solutions to the present crisis in expenditures on medical care did not develop by chance. Most physicians have unnecessarily and unduly restricted themselves to concerns with the individual patient, leaving the problems of overuse or misuse of medical resources in general—the nation as a whole, or even the patient populations they serve—to others. The latter, not surprisingly, press forward with solutions most in keeping with their own training and perspective.

Simply railing against such strategies in the name of concern for patients, social equity, quality of care, professional freedom, the vaunted reputation of American medicine, or whatever, is not productive. It hardly becomes the medical profession to see physicians shrink from the self-examination necessary to propose better allocations of medical resources, grounded in clinical insight and practice, than has heretofore been the case. The objective might be seen, in fact, as attempting to reach allocations of medical resources that achieve both health and cost-containment goals, not just the latter. To accomplish such an objective, the profession must study the clinical links between a purported need for medical care (“indications” for use of a procedure or service) and the ultimate results of that care (“outcomes” of care).

Clinical Links: The Missing Dimension

Some observers contend that the clinical links relevant to the appropriate distribution and use of medical resources have always been clear; they may even argue that those factors have been forcefully articulated in health policy circles. Others reply that, regardless of how well we understand the medical facts, they are not particularly pertinent for a problem

that is essentially economic. Candidly speaking, however, one can hardly say the medical dimension is well represented when it is so conspicuous in its absence from the major cost-containment strategies cited above.

Some commentators have become rather dispirited, trying to counter the arguments that the medical facts are unknowable because they are essentially unprovable, or that they are indefensible because they are manifestly in the profession's, but nobody else's, self-interest. Yet others, unreconstructed optimists all, assert that setting to work to clarify the medical dimension to rational and equitable use of services is both feasible and long overdue. The last position is ours.

Where do we go next in understanding the clinical significance of different levels of use of and expenditures on health care services? Both in this country and abroad, rates of use of services (mostly surgical procedures) have been found to differ greatly. They range up to sixfold between geographic areas, and they occur even for seemingly nondiscretionary services such as major surgery. Such differential rates have not been explained satisfactorily by economic, professional, or population characteristics, even age, health status, or informed consumer preferences.²

If observed variations in per person use across geographic areas cannot be traced to known variations in health needs or other characteristics of the population, whence do they arise? Some suggested explanations center on physician behaviors, such as aiming at a "target income" or inducing demand in situations where patients are presumed to be ignorant of their true needs, but these have not been borne out by empirical study.³ One hypothesis relates such variation to the need for physicians to make decisions about patient care in a context in which they truly are uncertain about the correct choice.⁴ Uncertainty pervades many topics: picking the correct diagnosis or appropriate therapy, for example, or identifying the point of diminishing (or absent) returns to medical care.⁵ In the latter case, there may be uncertainty as to the true utility of information obtained from one additional test, or as to where on a curve linking indications for care with likely outcomes of care lie the inflection point(s) between unequivocally acceptable and marginal care or between marginal care and highly controversial or questionable care.

Of course, social forces unrelated either to a strict accounting of medical need or to the degree of uncertainty about the correct course of action—unavailability of nursing home facilities, perhaps, or fear of medical malpractice, or even sensitivity to changing social values about human life—frequently influence a physician's decision to order or not to order a particular diagnostic or therapeutic procedure.⁶ Professional and economic incentives can interact to influence a more aggressive or more conservative approach by the physician.⁷ Nonetheless, these diagnostic and therapeutic decisions are ultimately made at the individual physician-patient level. Our point is that, even while maintaining responsibility for

the individual patient, physicians must begin to take more responsibility, collectively, for the aggregate effect of those decisions.

Failure of physicians to consider the collective impact of individual clinical acts may have helped produce two effects: a level of national expenditure for medical care that is perceived (rightly or wrongly) as too high for the nation to continue to pay, and an inability on the part of the profession to show that high cost has a commensurate high value either to individual patients or to the nation as a whole. The national debate in health policy circles would not continue to center on the high costs of medical care if, behind the “alarming” figure that the nation’s medical bill now approaches 10 percent of the gross national product, did not lurk the suspicion that, at least at the margin, the nation was not getting its money’s worth. There is nothing inherently evil, after all, in that 10 percent figure.

The challenge to the profession is to demonstrate the effectiveness of medical practice where that is possible and to recognize and eliminate its relative ineffectiveness where that is necessary. It remains society’s decision as to what levels of effective care it values enough to continue to pay for. We submit that searching for the missing clinical links between the soundness or validity of indications for use and actual use, as at least a proxy for the links between indications and outcomes, is where the medical profession might start to address this challenge.

Indications For Use, Actual Use, And Outcomes

Even for services whose rates of use have been studied to some extent, we know relatively little about the association among indications for use, actual use, and eventual health outcomes. We know even less about what it means to observe that the per person rate of, say, endoscopy in state A is four times that in state B. Is endoscopy being overperformed in state A, underperformed in state B, or might both explanations be true (or false)? Are the indications for which endoscopies are performed different between the states? Are some indications for endoscopy more discretionary than others? Might some uses of this procedure be absolutely necessary and others absolutely not?

At the moment, no one can really say. Much work has been done to define the extent of geographic variation in the use of health services; little has been done to explore the clinical implications. During its most expansive period, the Professional Standards Review Organization (PSRO) program tried to use population-based data to galvanize the private physician community to reduce what appeared to be excessive use of some (mostly outmoded) services (such as pelvimetry in obstetrics). In general, these studies were small, few in number, and generally unconcerned with “mainline” procedures (such as coronary angiography), and thus

they did not provide much conclusive evidence about the clinical meaning of differential rates of use.

Data on variation in use of services, unaccompanied by clinical information documenting indications for use, are not by themselves convincing evidence of overuse, at least to most practitioners. It is easy for physicians located in geographic regions of high use to argue that they are providing good medical care and that patients in low-use areas are being underserved. Indeed, they may be right. In the absence of clinical information on the links between indications for use and variations in use, aggregate data have little relevance to clinical practice.

Yet for the future, if physicians do not begin to provide that clinical link, they will be unable either to defend the status quo or to suggest avenues of change. Unwise cuts will be made; wise cuts will not. Physicians may lose the battle to those who can at least count the costs of medical care accurately.

Further procrastination is unacceptable. Nonetheless, delay may well occur. Efforts to understand variations in use in terms of clinical outcomes, efforts that would require significant expenditures, are low priority issues for the federal government, perhaps reflecting the assumption that the problem (perceived to be an economic one) lends itself to solution most readily by economic maneuvers. Funds to support health services research on these clinical links have never been abundant; they are inadequate to the task now and threaten, in the present economic and political climate, to become even more so.

Furthermore, research on these topics has not received much support from physicians apart from those in policymaking roles. Even physicians in academic settings have tended to view this type of research as less important than classic laboratory or bench research. If the medical community remains unwilling to look critically at these problems, physicians' ability to influence health care policy will be correspondingly reduced. The area where physicians have their greatest expertise will be that where their light will not shine.

Finally, economic or administrative approaches to the problems of rising medical costs will reduce expenditures for the poor and the elderly, irrespective of what they might accomplish for the rest of us. If they are pursued aggressively enough without regard to their clinical implications, they may well do more harm than good, at least for dependent or disadvantaged groups.⁸ Some reports within the last year or so suggest that infant mortality, low birthweight rates, and uncontrolled hypertension are rising; others foreshadow across-the-board cuts in many services (not just medical) for the elderly. Free medical care has been shown to confer benefits to selected groups of people, for instance the poor who are hypertensive.⁹ If these types of evidence are any indication, the weakest and most vulnerable will suffer the most from purely economic or admin-

istrative mechanisms to curtail medical expenditures. Physician inaction that contributes to such an outcome cannot be defended.

A Practical Starting Point

Where might the profession look for the missing clinical links? In our judgment, the generic issue to be explored first is how to identify specific areas where the use of medical services could be reduced without impairing access or quality of care. This task may seem to have a certain "utopian" aspect; one knowledgeable commentator notes, for instance, that if society chooses to limit the resources it spends on health care, it must do so "knowing that treatment will not be provided to everyone who might benefit from it."¹⁰ Nevertheless, the profession must begin somewhere, and we would like to offer our view of a practical starting point by reference to work that has been underway for the past year or so. We hope it will illustrate some ways in which clinical research and the expertise of private practitioners might be mobilized to address the issues we have sketched above.

Major research objectives include: (1) to determine, from a clinical perspective, whether geographic differences in the use of a number of common medical services represent overuse or underuse (or both, or neither); (2) to establish scientific bases for modifying the delivery of medical care in ways that do not jeopardize or only minimally affect patients' health; (3) to develop an economically feasible method, acceptable to physicians, to examine the appropriateness of utilization of services; and (4) to identify specific clinical areas in which future research would be most likely to yield useful findings.

For such an effort to succeed, leaders of the medical profession must be willing to do precisely that: lead the way in motivating private practitioners to examine the practice of medicine critically, and then to act on what they find. How they might act on such information is a topic for another day and another paper.

Several tasks seem particularly critical in prompting a critical self-examination. The first is relatively straightforward: to narrow the focus of investigation to a manageable group of medical and surgical services to be investigated. The choice turns, in part, on whether indications for these services are numerous or few, whether indications are differentially controversial, whether the services are widely used, and whether they have a high total cost to the nation. Candidates include cholecystectomy, colonoscopy, upper gastrointestinal endoscopy, coronary angiography, coronary artery bypass surgery, and carotid endarterectomy (all of which are being investigated), but many other services could also be chosen. Although narrowing the focus necessarily lowers the level of medical resources at issue, limiting the study to only a few procedures may pay off

in the development of a general approach applicable in the future to many more and different types of services.

A second task is to analyze population-based data as a prerequisite to establishing the range of geographic variation in the use of and indications for these procedures. In our case, such data come from several Blue Shield plans around the country that serve as Part B Medicare carriers. This source was chosen because the plans have detailed information on frequency of use of procedures and because their data can be related to a defined population and are potentially national in scope. Moreover, both elderly and nonaged populations, covered by both Medicare and private insurance, can be studied. Analysis of the data from twelve widely dispersed regions will, we hope, add greatly to what is now known about the geographic variation in the use of key medical or surgical services in the United States today.

As implied earlier, analysis, no matter how expert, will ultimately be unproductive in the absence of agreement by the leadership of the medical profession that it has been accurate, unbiased, and complete. To forestall this outcome, we created a Policy Advisory Board comprising a broad selection of the leadership of the medical profession. Representatives of the American Medical Association, the American Hospital Association, the American Colleges of Physicians and of Radiologists, and of several other specialty associations (family practice, gastroenterology, cardiology) have joined in this effort.

Analyses of geographic variation like those described above cannot by themselves establish the clinical links among indications for use, actual use, and outcomes; they can only indicate the need to do so. The preferred strategy for establishing the missing clinical links is to investigate them directly by randomized controlled clinical trials. The expense and time required, however, make such trials impractical in all but a few carefully selected instances; for some services, additional design constraints would make such trials very difficult to carry out.

A "second-best" choice is to develop a set of "appropriate-indications" criteria that are based on a critical review of the medical literature and on best professional estimates of the relationship of indications for use to good or poor health outcomes. With the assistance of the Policy Advisory Board, we have constituted several technical panels of distinguished clinicians. Drawing on the detailed literature reviews, summaries of the Blue Shield data, and their own experience, they will consider all possible medical indications for performing the study procedures and rank these indications from unequivocally acceptable to highly controversial to generally not recommended. They will also be asked to estimate the proportion of use of each procedure that could be eliminated with little or no decrement in patients' health.

The third step is to combine the work on variations in use with the lists

ranking the indications for use developed by the panels. Data on reasons for the use of study procedures come from a random sample of medical records of a random sample of physicians in practice in high-, intermediate-, and low-use Blue Shield Plan areas. These data permit the following: (1) assessment of the degree of acceptability of the indications for which the study procedures were performed in these areas; (2) analysis of area-specific distributions of indications for the various procedures; (3) determination of whether physicians in high-use areas are performing procedures more often for more controversial indications than they are in low-use areas, suggesting that some patients who may not have needed a particular procedure received it anyway; and (4) examination of whether physicians in low-use areas are underusing some procedures by virtue of doing them for only the least controversial indications, suggesting that some people who should have had the procedure did not.

The Past And Future Challenge

The project that was sketched so briefly above was intended to give a sense of one possible approach to exploring what we have called the "missing clinical links." We hope that it can serve as a model of how the physician community might contribute to rational, clinically sound changes in medical practice.

Is the medical profession, as represented by its major associations, willing to invest the time, resources, and prestige necessary to address the issue of clinical appropriateness within a public policy framework and climate that assumes that some use of many services must be curtailed? And to return to our initial question: Private practitioners, medical educators, and clinical researchers may not find all the "missing links" between medical practice and health outcomes, but will they have any justification for complaint about the future of medicine if they do not even try?

The practice of medicine has changed mightily in the past few decades, but health care remains the service that this country values most highly. Times, however, are changing: the political and economic climate no longer permit unrestricted allocation of the nation's resources to medical care, and the unchallenged position of organized medicine in choosing the future direction of the health care system is eroding. If the profession is to have a strong voice in the future, it must set about to examine within a clinical framework its past and present acts as a means of drawing lessons for the future.

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