Cite this article as:
P Caper
Defining quality in medical care
doi: 10.1377/hlthaff.7.1.49

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Prologue: The quality of medical care rendered by physicians in and outside of hospitals has become a subject of increasing public and, more recently, private-sector concern. Until quite recently, third-party payers were reluctant to question the medical decisions of physicians, recognizing that medicine is a complex equation and that one of the hallmarks of a profession is self-regulation. Beyond the issue of professional autonomy, though, is the reality that “quality” is defined differently by different interests. In this paper, Philip Caper discusses the evolution of federal involvement in the pursuit of quality, noting that organized medicine has never been bashful about employing the quality argument in an effort to thwart health policy thrusts that it opposed. Caper is well equipped as a physician and a policy analyst to discuss issues revolving around the quality of care. He was a professional staff member of the Senate labor and Human Resources (then Labor and Public Welfare) Subcommittee on Health and Scientific Affairs (1971 to 1976) and vice-chancellor for health affairs at the University of Massachusetts and chief of the medical staff at the institution’s teaching hospital in Worcester (1976 to 1980). During the early 1980s, he was a research fellow at Harvard University’s John F. Kennedy School of Government. He currently is a professor of public policy at Dartmouth Medical School and president of the Codman Research Group, Inc. Codman and the American Medical Review Research Center are engaged in an eighteen-month project to conduct the first comprehensive, nationwide analysis of the costs and utilization of local hospital services by Medicare beneficiaries. The work, undertaken for the Health Care Financing Administration, is a part of the agency’s effort to employ Medicare’s vast database to measure the performance of providers who render care to the program’s beneficiaries. Caper believes that the development of this statistical information will offer the medical profession a new opportunity to strengthen its participation in the evolution of federal health policy.
When John Iglehart asked me to write an article on the physician’s role in defining “quality” in medical care for this issue of *Health Affairs*, I was reminded of a conversation I had with him during the summer of 1972. We were having lunch at The Monocle, a watering-hole on the Senate side of Capitol Hill. At that time, I was a staff member of the Senate Labor and Public Welfare (now Human Resources) Subcommittee on Health and had been working on the legislation later to become the Health Maintenance Organization (HMO) Act of 1973. We had just completed a hearing on that legislation and had taken testimony from the American Medical Association (AMA). By that time, the committee had heard from many witnesses. The AMA was the only exception to general support for the HMO concept, arguing that HMOs reversed the economic incentives prevalent in the traditional fee-for-service system and would pressure physicians to withhold necessary medical care, thereby damaging quality.

This was neither the first nor the last time organized medicine had testified that constraints applied to medical practice by an outside body, whether the federal government or other purchasers of care, would damage its quality. This refrain has been so consistent and pervasive that I have begun to think that, in the eyes of the AMA and probably most practicing physicians, “quality” is defined as “a commodity that is damaged if any changes whatsoever are made in the structure or financing of the current fee-for-service system of medical practice.”

My standing as both physician and policy analyst, then as now, brought a dual perspective to the concern about the virtual absence of uniform quality standards in clinical practice. It was this concern I discussed with John Iglehart that day in 1972, suggesting that he devote an article to the subject in The National Journal, for which he was then a reporter. I like to think that this issue of *Health Affairs* is, in some measure, the germination of that seed planted almost fifteen years ago.

Regardless, the issue of quality is clearly one whose time has come—the subject of congressional hearings, conferences, congressionally mandated studies, journal articles, and many research projects. Why has quality in medical care moved so suddenly to the front burner? In my opinion, it is the direct result of the recent intensification of health care cost-containment efforts and, consequently, of increasing competitive pressures throughout the health care industry.

### Setting Standards In Medical Care

From early in the development of medical practice in the U.S., and especially since the beginning of the twentieth century, society has delegated the establishment of quality standards (aside from some aspects of giving initial credentials) to the medical profession. Indeed, one
of the elements defining a profession is that it establishes and enforces its own standards.’ The problems of defining and implementing quality standards are not unique to medicine. But in the case of medical practice, those standards are perceived to be based in science and upon rigorously tested empirical evidence obtained either in the laboratory or through scientifically structured field testing. The medical profession has emphasized and promoted the mystique of science and encouraged the image of medicine as a science-based discipline. This emphasis has been pursued partially to distinguish allopathic physicians from other health professionals, such as homeopaths, osteopaths, naturopaths, and chiropractors, which the medical profession would like to portray as less “scientific” and therefore less reputable.

This emphasis on science has created expectations among the public, as well as within the medical profession, that standards for quality in medicine could be more rigorously defined than may be the case in other disciplines. Being the perceived custodian of its own standards has distinct advantages for professions such as medicine. First, it has permitted medical professionals to attain, and retain, a very high level of autonomy, both for themselves as a group and for their individual members. Second, it has allowed them largely to determine working conditions and terms of payment. Third, it has helped turn medical decision making into a “black box,” relatively immune to outside examination. The scientific and pseudoscientific jargon of medicine adds to the opacity of this black box. As long as doctors alone can understand the processes of medical care, lay persons have to take our word for it when we tell them that a particular action—by government, employers, insurance carriers, or consultants—will damage quality.

This process of standard setting worked well as long as nobody had any reason to look too closely. But, as a result of the high costs of modern medicine and the enormous and growing power of physicians to allocate society’s resources, that willingness to accept the word of the experts alone is eroding.

In 1973 and 1974, as part of the development of the federal HMO Act, the Senate Health Subcommittee held a series of hearings on quality in medical care. These hearings were generated in part by our determination that federally sponsored HMOs should not damage quality. If organized medicine was concerned about damage to the quality of care resulting from then pending federal legislation, we reasoned that, as a legislative authorizing committee, we had a responsibility to understand what we could about the state of the art of defining and measuring quality. After the hearings, the committee concluded that standard setting in clinical medical practice was a rather ad hoc process. In fact, we were unable to identify any systematic or consistent mechanism to gather information about, monitor, or evaluate the quality of clinical medicine
being practiced in the United States.

The closest thing to such a mechanism at that time was the Joint Commission on Accreditation of Hospitals (JCAH). In his testimony at the 1973 Senate hearings, the executive director of JCAH, John Porterfield, said it was concerned with whether the proper environment existed within a hospital to permit the practice of high-quality medicine, not with the actual clinical decisions of the medical staff. During a visit to a hospital, the reviewers might make certain that the sprinkler system worked, that fire exits were clearly marked, and that the appropriate medical staff committees existed, functioned, and kept adequate records. But if a surgeon on the staff decided that he wanted to take out the appendix of all blue-eyed males over age sixteen, that was none of the JCAH reviewers’ business. Although the Joint Commission has recently begun to add outcome measures (undoubtedly responding to the hullabaloo about quality being generated outside the health professions), its aggressiveness in defining and measuring quality is limited by the current state of quality assessment and by internal political constraints arising from the fact that it is an organization sponsored by doctors and hospitals.

In 1972, Congress created the professional standards review organization (PSRO) program, nominally to review professional standards and quality of care provided to Medicare beneficiaries, but in fact to attempt to deal with burgeoning costs. In a last-minute dispute with Senator Wallace Bennett, the prime author of the PSRO program, over control of the PSROS, the AMA withdrew its support for the legislation. Throughout its ten-year life span, the program was hampered by inadequate financing and lack of clarity and commitment to its goals.

To address quality measurement in medical care, the Senate Health Subcommittee proposed the creation of a “Commission on Quality Health Care Assurance” as part of the HMO Act of 1973. The proposal did not make it out of House-Senate conference but rather emerged as a mandated study to be conducted by the Institute of Medicine with federal funds. It was never carried out and, as far as I know, died silently in about 1975.

The Resurgence Of Concern About Quality

Quality in medical care was relatively dormant as a political issue until about 1982, when the then discredited PSRO program was replaced (in the Social Security Amendments of 1983) by the more potent peer review organization (PRO) program. Now the “quality issue” is back with a vengeance and concerns private purchasers of health care as much as government. This resurgence, in my opinion, is the natural and understandable reaction of a profession, accustomed to a great deal of
autonomy, which once again perceives itself to be under attack from the outside.

That attack is called cost containment. Cost containment as an objective of public policy has been added only recently to the access and quality objectives that have been part of our private and public health care policy since early in this century. The addition of cost containment as a clear objective during the late 1970s accounts for most of the changes in the structure and financing of medical care that are now taking place in both public and private sectors, and for much of the alarm within the medical community.

American culture is averse to central authority. It is difficult for our society to deal with per capita costs of medical care (which show up in insurance premiums) at the top—by capping budgets, as occurred in Canadian hospitals, for example. We instead try to manage spending by controlling individual clinical decisions, using a wide variety of approaches at the grass-roots level. It is not that the business community, insurers, or the public at large is particularly interested in challenging doctors’ clinical decisions as such. Most of them are intimidated by the thought. Rather, it is because they recognize that through our clinical decisions, physicians control vast public and communitywide private resources. Private purchasers of medical care, particularly within the business community, have been appalled, embarrassed, and frustrated by their inability to account for their health benefits dollars. What purchasers want is accountability for the use of those resources. In the absence of constraints at the top, virtually their only recourse is to challenge individual clinical decisions, no matter how frightening or distasteful that process may be.

But how does one convert the desire for accountability into practice? In the past, the public’s willingness to leave judgments concerning quality to the medical profession was based on the belief that each physician’s training and associated credentialing guaranteed high quality in medical care. Now, instead of simply “taking the doctor’s word” that quality is being damaged by cost containment, people are asking for evidence, beyond anecdotes, to document that claim. Some of that “show me” attitude has taken the form of an enormous thirst for data, describing both the costs and outcomes of medical care.

Ironically, the public and profession alike are now caught in the same dilemma. We have progressed little since 1974 in agreement on either standards or mechanisms for a systematic and comprehensive quality assessment. There is, however, a great deal of activity in entrepreneurial and research and policy arenas in developing both the tools and the mechanisms to allow for routine assessment. Public and private purchasers are demanding that “quality assurance” be among criteria used in selecting HMOs, preferred provider organizations (PPOs), and other
providers.

On the one hand, at least we are thinking more seriously about the difficult issues involved in defining and evaluating the quality of care. On the other hand, this heightened awareness of quality and the difficulties involved in assuring its presence throughout the profession have made both practitioners and purchasers very uncomfortable. Medical practitioners resent the new review and regulatory requirements.

Preadmission certification, second surgical opinion, and concurrent review programs are now required by many health insurance companies; HMOs and PPOs selectively contract with hospitals; and PROS scrutinize medical care provided to Medicare beneficiaries. The diagnosis-related group (DRG) prospective payment system has introduced real incentives into medicine to change the "usual and customary" way of making clinical decisions, both within and outside of hospitals. From the physician's perspective, many forces are now "intruding" into the doctor-patient relationship.

Similarly, purchasers of care now see that managing the costs of medicine means attention to its content: that is, the nature of clinical decisions. This is equally unaccustomed and troublesome turf for the nonphysician. Moreover, managing medical care raises liability issues, as well as the old fears of interference in the practice of medicine. These are all problems that do not exist when the employer's responsibilities are confined to paying bills alone.

The Problem And A Proposed Solution

The recent attention to quality has highlighted two important facts. First, quality problems do exist in medicine. The more systematically we examine the practice of medicine, the clearer that becomes. Second, we need a working, consensus definition of quality if we are to address the problems associated with it.

In the interest of serious dialogue, therefore, I propose that we ban from our vocabulary the word "quality" as it applies to medical care, at least for now. Even though that would greatly reduce the number of conferences being held, it also would greatly improve the effectiveness and precision of the discussion about what is and is not reasonable to conceptualize and to measure. In its place, we should begin to identify and measure the components of quality. In 1974, I attempted to define three components. The first is efficacy. Does the diagnostic or therapeutic procedure accomplish its goal? Randomized clinical trials, although expensive and sometimes ethically troublesome, probably remain the best way to approach questions of efficacy. New, less expensive epidemiologic techniques using routinely collected claims data also are under development.
The second component is appropriateness. A particular diagnostic or therapeutic course of action may be appropriate in some circumstances, and not in others. The costs and benefits of alternatives must be weighed in each circumstance. Costs must be assessed in both human and economic terms, that is, in terms of clinical risks and benefits, and dollars, which, to an increasing degree, also represent opportunity costs as health care budgets tighten.

The third component is the caring function of medicine—the interpersonal, supportive, and psychological aspects of the physician-patient relationship. This is the most visible and easily perceived component of quality, and the one most readily appreciated by the patient. Yet it is often most easily ignored or discounted by highly trained and technologically oriented physicians, and seemingly the most threatening to them. It is also the most fragile and easily damaged component of quality.

Only within the past decade have systematic attempts begun to monitor some aspects of these components of quality using readily available data, such as hospital discharge abstracts or health insurance claims data maintained as a matter of public record by many states, or the Medicare claims records maintained by the federal government. Increasingly sophisticated uses of these large databases hold still more promise for identifying key aspects of quality in the health care system. Some of these efforts are described below.

Measuring efficacy or outcome. The efforts of the Health Care Financing Administration (HCFA) to measure hospital-specific mortality rates are a step in the right direction. We can measure hospital-specific mortality, although significant methodologic problems exist in correcting for differences among hospitals in case-mix and case severity and in defining just when a death is related to a hospital stay. Population-based mortality rates (both in and out of hospital) also can be measured for the Medicare population. Great care must be taken, however, in interpreting this information, to understand differences in case-mix among hospitals, in the case of hospital-specific rates, and to understand possible differences among apparently similar populations, in the case of population-based data.

Mortality data, the ultimate measure of the success or failure of medical care, can be used to address the efficacy of specific therapies as well as the adequacy of particular environments within which care is provided. Large differences in mortality rates among similar cohorts of patients undergoing similar therapy in different hospitals have been noted. Rates of readmission and some types of complications also can be measured using Medicare and other claims data.

Severity of illness, at least for some case-mixes, also can be measured. However, severity measurement techniques developed so far seem most applicable to chronic medical conditions, and the proprietary nature of
some of the algorithms being used by commercial firms to assign severity scores may limit their general acceptance by the medical profession. Nevertheless, these techniques can be used to quantify a patient’s progress, or lack of it, during the course of a hospital stay. They also can generate useful data to link the consumption of resources during a hospital stay with the severity of a patient’s illness.

**Measuring appropriateness.** The appropriateness of hospital admissions can be inferred, if not specifically evaluated, using techniques based upon determining a professional consensus, upon algorithms to detect certain clinical criteria in the claims or patient record, and upon small area analyses, measuring per capita rates of hospital costs and utilization among defined populations in specific hospital market areas. The epidemiologic surveillance of medical care first advocated by Nightingale in Britain and Codman in the United States seems near reality. Such measurement is becoming routine in many states where hospital discharge or health insurance claims data are publicly available. States for which such analysis of the utilization (and in some cases per capita costs) of hospital care are now available include California, Iowa, Maine, Massachusetts, New Hampshire, New York, West Virginia, Vermont, and Washington. Small-area data also are available for the Medicare population in Arizona, Indiana, and Iowa. HCFA plans to release data within the next year through the PROS, analyzing the hospitalization patterns of the entire Medicare population, along with additional data describing hospital-specific and population-based mortality rates.

Observations of wide variations among similar populations in the use rates of both inpatient and outpatient medical care raise questions about the validity of consensus-based notions of appropriateness. These questions seem to be reinforced by observations that appropriateness criteria for at least some clinical procedures vary widely among individual clinicians. Work with physicians in Maine has shown that even when discussions among clinicians seem to indicate that their criteria for the performance of clinical procedures are similar, examination of the data indicate that, in practice, large variations exist. Language alone, in the absence of the ability to quantify actual performance, may not be sufficiently precise to measure differences in the physicians’ threshold for action. The recently published RAND study, intended to explore the relationship between geographic use rates and appropriateness of care, failed to take account of both this problem and the fact that the very large populations that they studied obscured most of the differences in clinical decision making among individual physicians.

Thus, it seems that most clinical decisions have a substantial discretionary component. That fact leaves patterns of medical practice open to influence by factors other than patterns of illness. Therefore, we must gather knowledge of the outcomes of medical care and improve
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consensus within medicine about the advisability of particular courses of action, to reduce the amount of uncertainty for individual physicians’ treatment.

External (nondisease) factors that may influence clinical decisions include professional training and biases, economic incentives, regulatory or review programs, the capacity of the local health care system, and the environment in which patients reside. For example, we consistently observe high hospitalization rates in areas populated predominantly by low-income people. Much of the high per capita rate in these areas is accounted for by adult and pediatric medical case-mixes (nonsurgical/nonmaternity), in which decisions regarding the use of hospitals are most discretionary. A generous supply of hospital beds per capita, absence or inadequacy of nonhospital-based primary care, or a home situation making outpatient treatment inadvisable may contribute to high rates of hospital use in these populations. We need to know more about the social and economic circumstances and the health care delivery system to determine what factors underlie these high rates of hospitalization if we are to make good decisions concerning health policy.

Measuring the caring component. Patient satisfaction can be measured using survey techniques to determine, for example, whether specific surgical procedures meet the expectations of patients, whether symptoms disappear or persist after treatment, and, if they persist, how much they concern the patient. In a competitive era, criteria such as office or clinic waiting time and empathy of physicians and other caregivers with patients, as well as whether the results of clinical decisions live up to patient expectations, will increasingly influence the economics of medicine. Patient preferences are becoming important determinants of which doctors and health plans get business. Patients’ willingness to challenge physicians will become even more widespread as information documenting the enormous discretion available to physicians becomes more readily available to the public. Today’s concern about variations in endarterectomy, hysterectomy, and cesarean-section rates is only the tip of the iceberg, the base of which is the absence of professional consensus about the efficacy of these procedures.

Even though these quantifiable parameters of quality do not cover the whole field, they represent a respectable chunk of it. I believe that focusing on such specific elements would accelerate our progress in understanding how best to measure quality.

Physicians’ Role In Quality Assurance

During the first three-quarters of this century, American medicine has evolved into a highly autonomous profession focused on increasingly sophisticated techniques. It has, as a profession, paid little attention to
the social and economic implications of its actions. Questions of productivity and efficiency have been subordinated to those of efficacy and safety, and the efficacy problems that have been addressed have tended to be short-term and rather narrow-range. Defining productivity has been especially difficult, both because we have not achieved consensus about either the output, or product, of the health care system and because accurate measures of medical care costs have become possible only recently. Therefore, solutions to the problems of productivity and efficiency are evolving, with a few exceptions, without the participation of organized medicine.

Physicians and other providers do not like to be measured or monitored and have consistently resisted such attempts. Regardless, information describing medical practice is rapidly inundating both purchasers and providers. This information will be used, however, initially by the purchasers of care, to attempt to measure its costs, appropriateness, and "quality." Decisions based upon this information—good, bad, and irrelevant—will influence clinical decisions, both through direct review and challenge of individual decisions, and by altering the economic and structural characteristics of the delivery system within which medicine is practiced.

The forces of change are far advanced. Society's attempts to control the rate of rise in the per capita costs of medical care have become a threat to the autonomy of clinical decision making. A physician practicing in Hanover, New Hampshire, resents having to call a consultant in Chicago to get permission to hospitalize a patient. Physicians are bombarded by a wide variety of differing (and often inconsistent) and what appear to them to be irrational requirements restricting their ability to make decisions that they believe to be in the best interest of their patients. They will quickly learn to game these requirements, adding further to the confusion. Yet such requirements are being imposed with increasing militancy by public and private purchasers and payers.

We do not have a national cost-containment strategy. Yet, clearly, programs designed to curtail medical care cost increases will proliferate with or without the cooperation of the medical profession. The question is, how damaging will they be? Without the technical expertise only physicians can contribute, cost-containment strategies will be largely arbitrary and uneven. Answers to the questions raised here are urgently needed and, I believe, require constructive input by organized medicine both in interpreting massive quantities of information and in shaping cost-containment efforts.

In this area, analysis of utilization, outcome, and costs for the care of patients in communities served predominantly by university and community-based teaching hospitals shows promise. Per capita admission rates for the vast majority of case-mixes in such communities are charac-
characteristically below their own state averages, and in most instances the conservative admission pattern offsets higher-than-average costs per case to keep per capita costs low. Examinations of population-based data on utilization patterns in California, New York, Iowa, Minnesota, Washington, Vermont, Arizona, New Hampshire, and West Virginia all have been consistent in this regard (Exhibit 1). Additional research is under way to determine what features of the medical care network, as well as of the hospitals as institutions, produce this pattern.

For such constructive engagement to occur, medicine must abandon its strategy of stonewalling cost-containment efforts and begin to accept the legitimacy of the public’s concerns about medical care costs. Physicians must both recognize that medical care cannot perpetually consume increasing percentages of the gross national product and be willing to contribute our special expertise to the solution. A small proportion of the leadership of organized medicine understands this problem, but a sizable task of educating the rank and file lies ahead.

### Exhibit 1

**Hospital Utilization Rates, Per Capita, In Areas Served By University/Teaching Hospitals**

<table>
<thead>
<tr>
<th>Hospital Location</th>
<th>Medical Ratio</th>
<th>Surgical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palo Alto, Calif.</td>
<td>.63</td>
<td>.77</td>
</tr>
<tr>
<td>Iowa City, Iowa</td>
<td>.83</td>
<td>1.19</td>
</tr>
<tr>
<td>Morgantown, W. Va.</td>
<td>.84</td>
<td>.78</td>
</tr>
<tr>
<td>Rochester, N.Y.</td>
<td>.66</td>
<td>.83</td>
</tr>
<tr>
<td>Hanover, N.H.</td>
<td>.72</td>
<td>.86</td>
</tr>
<tr>
<td>Burlington, Vt.</td>
<td>.94</td>
<td>.96</td>
</tr>
</tbody>
</table>

Source: Small area analyses performed by the Codman Research Group, 1987.

### Medicine As A Political Issue

Physicians possess no special claim to expertise about how much of our gross national product should be devoted to medical care. In fact, asking physicians to make resource allocation decisions at the bedside conflicts with the physicians’ role as advocates for their patients. We cannot reasonably ask physicians to make conflicting judgments about both the human and economic costs and benefits of their decisions.

Even though physicians have an obligation not to squander resources on patently unnecessary medical services, we alone cannot determine the value of medicine, even practiced at optimal efficiency, compared to other social needs. How much medical care society can afford, as well as how that care is to be paid for and distributed, are ultimately political questions. Answers must be decided by society at large, probably most appropriately through our political institutions. Our society’s inability to
deal adequately with such questions to date is, it seems to me, more a failure of the political than the health care system. Nevertheless, physicians can and should actively participate in the debate by assuring that valid information about the costs and benefits of medical care is both made available and properly interpreted. We physicians do have special knowledge about the technical aspects of medical care and have an obligation to contribute that knowledge to the policy debate about what constitutes the “right” amount of medical care. We also have a responsibility to act as advocates for our patients in bringing them the best care within the limits society sets. That participation could be the most valuable contribution the medical community makes toward assuring the optimization of quality in medical care.

Summary

Restraining the rising costs of medical care in our system impinges on clinical decisions. Because of concerns about the effects of cost-containment programs on the quality of medical care, we must identify specific and measurable components of quality and develop a system to evaluate and monitor them. Fortunately, this need seems to be converging with rapid progress in the completeness and quality of the databases describing medical care and in the capability of statistics and database management necessary for turning those vast quantities of data into useful information for public and private management policies.

Physicians alone cannot decide how much medical care society can afford, especially when making such decisions conflicts with our obligations to individual patients. But we must become more actively involved in channeling cost-containment efforts into directions least injurious to medical care effectiveness and access and in seeking to understand the effects of such programs on quality. The days of stonewalling are past. The notion of routine epidemiologic surveillance of medical care first proposed by Nightingale and Codman seems to be close to reality, with systematic measuring and monitoring of the processes of medical care becoming routine. The challenge now is to understand the reasons underlying the large differences that exist in the processes of care and how they affect the outcomes of that care.
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NOTES

5. Wennberg et al., “Use of Claims Data Systems to Evaluate Health Care Outcomes.”
13. Wennberg et al., “Will Payment Based on DRGs Control Hospital Costs?”