

A RAND NOTE

**Health Services Research:
Is It Good for You and Me?**

Robert H. Brook

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ROBERT H. BROOK, M.D., Sc.D.
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Abstract—Two principles shape an applied research field such as health services research. First, studies can be classified as methodological, descriptive, analytical, or experimental; and second, health services research is conducted at two levels, the doctor-patient level and the policy level. Twenty years of increasingly sophisticated description and analysis allow researchers now to measure better the appropriateness and outcome of care, both at the policy level (do cuts in medical coverage affect patients' health?) and at the individual level (does physicians' behavior affect patient compliance and thereby outcome?). Further, researchers have been able to develop

increasingly useful measures of patient health status and function. Consequently, relations between the public and physicians and medical institutions will change further as patients receive more and better information about hospital mortality rates, quality-of-life measures, and similar results of health services research. Conducting good health services research is complicated, depends upon teams of physicians and social scientists working together, and produces complex, not simple, results, but it is worth the effort because the results make a difference to physicians and to the American people. *Acad. Med.* 64(1989):124-130.

Why would anybody write a paper called "Health Services Research: Is It Good for You and Me?" Clearly, only because one has been asked to do so. Then, how do you begin such a paper? Unquestionably, with a quote from Lewis Carroll. But that would be a mistake—white rabbits belong in a laboratory, and if health services research is anything, it is not a laboratory science. Health services research is an applied science that operates at a patient or population level and asks questions such as: Does this technology work? Is it cost-effective? What is the impact of DRGs on quality?

How about beginning the paper with a joke, a funny story, or maybe a

quote from the Bible? The latter seems appropriate, particularly in the aftermath of an election year. But will God really defend or even define health services research? The homeless seem to require more of His attention. In the beginning, did God create health services research? It certainly feels like it, and I have been in this field for only 20 years.

There is a solution. I can begin with a list of questions that I am frequently asked:

What is health services research?
Could you define it, please?
What have you done for me lately?
Are you a real doctor?
Of what honorary economics society are you a member?
On a scale of 1 to 10, with 10 being molecular biology, how important is health services research?
Why didn't you pursue a career in chemistry?

Now I have another problem. Are these questions answerable? If so, how? As you might have guessed, the answers require hearing a story (maybe a tale, tall or otherwise) about why a graduate of Johns Hopkins University in the 1960s became a health services researcher, some of the results of research studies with which I have been fortunate enough to be associated, significant accom-

plishments of the field of health services research, and the promise that the field holds for the future.

Before I begin this odyssey, it is important to mention two principles that shape an applied research field such as health services research. First, studies can be classified as methods (how should quality be measured?), descriptive (what is the level of quality in this academic institution?), analytical (do teaching hospitals provide better quality than non-teaching hospitals?), or experimental (after randomizing patients to an HMO or the fee-for-service system, in which system is the quality of care better?). Second, health services research is conducted at two levels. Research studies can answer questions at the doctor-patient level, such as, "Will changes in interviewing style improve patient compliance?" and at the policy level, for example, "How will factors such as providing reimbursement for medications affect patient compliance?" To understand the impact of health services research, it is important to keep in mind whether the focus is on descriptive research at the patient level or experimental research at the policy level. This paper weaves a story that demonstrates how work in all of these areas has produced an impact at the societal level. The story is built around the content areas of outcome and appropriateness of care.

This paper was delivered as a plenary session address at the 99th Annual Meeting of the Association of American Medical Colleges, Chicago, Illinois, November 1988. The research reported in the paper was supported in part by the Robert Wood Johnson Foundation; the opinions, conclusions, and proposals are those of the author alone and do not necessarily represent the views of the RAND Corporation, the University of California, or the Robert Wood Johnson Foundation.

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A Personal Odyssey

Two events helped determine my professional destiny. As a medical student, I realized that an external funding source was necessary, if not sufficient, for survival even when one was a Baltimore inner-city resident. It was not surprising that I, being the product of a genetic environment that crossed a teacher and a social worker, considered a part-time job opportunity in the School of Public Health at Hopkins particularly attractive while I was a medical student.

Professor John Williamson had just finished collecting data for a study in which some members of this audience might have participated.^{1,2} It involved asking faculty members at almost 30 medical schools to describe a few vignettes that they considered to represent good or poor quality of care. About 15,000 pieces of paper that described the same number of episodes of care arrived in Baltimore and were in critical need of a coder who knew some clinical medicine and who might be interested in helping to develop a typology of quality of care. Clearly, a litter of medical students was required.

Alas, the task was too boring for even the average medical student, and when I found John, the litter had wandered off in search of other opportunities. John was desperate. I surveyed the stacks of boxes in his office, determined quickly that they would fit into the trunk of my old car (see, I am really a scientist at heart), and told him I would code all 15,000 forms. After John picked himself up off the floor, he said "yes," we negotiated a price, and I was off.

What John did not know, because it was not part of our negotiation, was that he would not find me until the end of the summer. All 15,000 painfully collected forms were stuffed carefully into the back of my car and coded by the light of a Coleman lantern as I meandered from national park to national park (luckily this occurred before the policy of "let it burn, baby, burn" was the motto of the National Park Services).

At the end of the summer, I returned with all forms intact and

coded, according to a new typology of quality, only to find John in a mild panic. This was my first exposure to the fact that good process does not necessarily lead to a good outcome. I am not sure he ever forgave me for shortening his life by 10 years, but the work that I had done had opened up for me a whole new perspective on medicine and patient care and helped to develop the conceptual framework by which quality could be measured.

Early Questions about Quality of Care

As reported by the internists sampled for this research, vignettes describing actions resulting in poor-quality care were almost equally distributed among the arenas of general care, general evaluation, and specific treatment. Eleven percent of these actions were attributable to drug misuse, 11% to failure to arrive at a correct diagnosis, 7% to professional style, and 4% to improper use of the laboratory. Fourteen percent of the detrimental outcomes reported by internists in these vignettes involved reduced longevity; 32%, physical abnormalities; 21%, physical symptoms; 16%, psychological symptoms; and 8%, patient function. Many of the errors had resulted from system flaws rather than physician failures. Even in the 1960s, academic faculty members were aware of how their actions affected patient function and psychological outlook.

I asked myself, "Could research involving disciplines other than medicine, such as sociology or management sciences, contribute to understanding or solving some of these deficiencies?" Why were x-ray reports lost? Is talking to patients about dying so difficult that academic faculty would describe such episodes of care as representing exceptionally good care? Why weren't other medical students exposed to this or any other epidemiology of quality of care? Would medical students become better doctors if they saw empirical evidence of how routine care could result in life or death differences?

Well, John paid me. I ate, grew, prospered, did not become a member

of the new homeless, but did become an intern at Baltimore City Hospitals. One of my first rotations was in the emergency room. We worked 24 hours — off 8, on 12, off 8, on 16, off 8, and so on. The State of Maryland was not in the business of regulating interns' on-call hours. For me, the rotation through the emergency room was a second motivational force to ask some hard questions. Was all this work necessary? What did we accomplish? I vowed to find out.

An Early Study

When my first elective came, I drew a systematic sample of patients and followed them up six months after they had completed their initial emergency room visits.³ All sorts of findings emerged: First, we did not do as much as we thought. Professionals, myself included, believe in ourselves, and this belief can result in overestimations of our efficiency, efficacy, and effect. In my emergency room follow-up study, I learned that we were not terribly productive. We generally saw only a few patients but spent a lot of (probably too much) time with them. Second, by six months we lost to follow-up many if not most of our patients, even those who had chronic disease. For instance, of 141 patients who were sick enough at their initial emergency room visits to require a follow-up barium enema, upper-gastrointestinal x-ray, or gallbladder study, 67% completed their x-rays, 38% knew whether they were normal or not; and of those who had abnormalities, 37% received adequate therapy. In summary, about a fourth of the entire group received effective care.

Our academic mega-workups that were performed during the initial emergency room visits had been largely for naught. Some of these disappointing outcomes were the result of lack of compliance on the part of patients, but most of the time the system in which I practiced had failed. Follow-up appointments were not given because an appointment desk was closed, laboratory slips containing important abnormal results

mysteriously disappeared, and providing continuous, coordinated care over time was difficult. Some gastric and duodenal ulcers went untreated, and a few cancers were not removed. My awareness of and participation in health services research had moved from the methods to the descriptive phase. It still had a long way to go, however, as I realized that the results of the study could not be generalized beyond the one institution in which it was conducted.

Inadequacies in Health Care

Since that time, many health services researchers, myself included, have spent considerable effort learning how to define and measure better quality of care.⁴ The dimensions of quality have been defined.⁵ We have applied these definitions and proven that a substantial fraction of care we deliver is inadequate, and that there are variations in the amounts of care and in the appropriateness and outcomes of care that we provide that are too large to be ignored. For example:

1. The probability that a man has had a prostatectomy by the time he reaches the age of 80 varies from 20 percent to 60 percent, depending on the New England town in which he lives.⁶ For a woman, the corresponding figures for loss of her uterus by the age of 70 are 20 percent and 75 percent. These variations are not just local phenomena but also occur statewide. For example, depending on the state in which they reside, some people over the age of 65 have a threefold increased probability of undergoing coronary artery bypass surgery. Respective figures for carotid endarterectomy, pacemaker insertion, and coronary angiography are four-, three- and twofold.⁷

2. Among all continuing patients being treated in 16 academic internal medicine primary care practices, 30% of those who should have received a flu vaccination actually received one. The range among practices was 4 to 83%. Corresponding figures for giving pneumococcal vaccinations, teaching

breast self-examination, and discussing birth control were 19% (range 2-54), 50% (range 35-63), and 56% (range 0-82).⁸

3. Based on a random sample of Medicare patient records, a fourth of upper-gastrointestinal endoscopies and coronary angiographies and two-thirds of carotid endarterectomies were performed for clinically equivocal or inappropriate reasons.⁹ Almost half of carotid endarterectomies performed in five academic VA hospitals were also considered to have been performed for medically equivocal or inappropriate reasons,¹⁰ as were two-fifths of the coronary artery bypass surgeries performed in a random sample of three hospitals in one western state.¹¹ In addition, appropriateness varied by hospital, with one hospital's staff operating for appropriate indications 78% of the time, and another's, 37 percent of the time.

4. An analysis of clinical data from a large hospital chain demonstrated that over a fourth of deaths from cerebrovascular accidents, pneumonia, or myocardial infarction might have been preventable.¹² Sophisticated clinical adjustment for case severity disclosed that mortality from coronary artery bypass surgery varied 20-fold among 16 academic institutions.¹³

Outcomes and Appropriateness of Care

Although much more methods research is needed, advances in health services research, in general, and the science of measuring the appropriateness and outcomes of care, in specific, have made it possible for studies of quality to move from the descriptive to the analytical and experimental level. This, in turn, has resulted in a fundamental change in the nature of discussions concerning the future of the medical system. Whereas previously attention was focused almost exclusively on determining levels of health care expenditures and on ascertaining whether use of services was equitably distributed among segments of the U.S. population, today it is possible to introduce the concept of

outcomes and appropriateness of care. Models have been tested that relate quality to policy, taking into account clinical and organizational variables. These models can permit us to monitor the impacts of policy changes and governmental regulation on quality of care. For example, we are now in a position to understand at a clinical level whether and how the prospective payment system and diagnosis-related groups (DRG)—the development of the DRG system itself is a testimony to the effect of health services research—have affected the quality of care delivered to hospitalized patients; whether paying physicians on a salary versus fee-for-service basis affects quality; and the degree to which changes in a patient's insurance status can have an impact on care.

For instance, a typical example of modern health services research was prompted by actions in California in 1982, when 270,000 medically indigent adults who had previously been covered by MediCal (Medicaid in California) were suddenly disenfranchised. Because of the previous investment in developing and validating measures of quality of care and the availability of a strong, clinically aware group of health services researchers at an academic center, Lurie and colleagues were able quickly to organize a study to determine the impact of this policy action. They showed unequivocally that it increased the blood pressures and impaired the health of these poor, chronically ill people and probably caused the deaths of some.¹⁴ Specifically, before termination of medical benefits, 3% of the 186 adults studied had diastolic blood pressures greater than 100 mm Hg; one year later, the corresponding figure was 19%. General health status fell nine points on a 100-point scale; seven of the 186 people died, many after they depleted their supplies of medications. Satisfaction with care declined from 97 percent satisfied to 40 percent satisfied, and about half of the population (versus 92% before termination of benefits) had a regular doctor to whom they could go for care.

Evaluating Current and Proposed Policies

We are now in a position, if we so choose, to monitor with clinical precision a wide variety of current or proposed policy actions and to assess their beneficial or harmful effects in terms of quality and health status. In fact, we can evaluate whether the world is moving closer to the goal of the World Health Organization of achieving good health for all by the year 2000.

The motivation for mounting such evaluations and making them a routine part of academic health centers is substantiated by the work described above. In addition, we know from other health services research studies that changing economic incentives can have a profound effect on use of services. Unfortunately, such changes appear to affect the use of both medically appropriate and inappropriate services. For instance, patients' deductible charges and coinsurance charges can reduce use of services substantially, as shown in the RAND Health Insurance Experiment. This reduction had no impact on the health of the average person enrolled in the experiment, but it did worsen the health of people who were both poor and sick.¹⁵ People taking advantage of the free care plan had had 40 percent more episodes of ambulatory care for conditions for which care is highly effective, but they also had had 50 percent more episodes of care for conditions for which care is rarely effective. Free care had increased the per person, per year use of penicillin by 70 percent, narcotics by 90 percent, and minor tranquilizers by 50 percent. (The use of antibiotics is related more to a person's insurance status than to the presence of a bacterium. This fact is not routinely taught in medical school.¹⁶) In another study of insurance benefits, payment for drugs was restricted to three drugs per month. This policy reduced the use of medications of limited efficacy by 58 percent, but it also reduced use of essential medications by 28 percent; for example, use of insulin fell 28 percent, and use of digoxin fell 45 percent.¹⁷

In order to perform high-quality health services research studies, academic health centers and other governmental and policy organizations must welcome multidisciplinary teams of well-trained researchers and help provide them with adequate funding. The agency that has the major mission in the federal government for funding health services research, the National Center for Health Services Research, has not done well in the latter regard. In constant dollars, from 1975 to 1985 this agency lost 75 percent of its extramural budget (for comparison purposes, the National Institutes of Health's budget grew by 27 percent). In 1985, the National Center awarded 39 investigator-initiated grants (compared with 2,500 from the NIH). The National Center's budget in 1975 was 0.9 percent of the NIH's budget; in 1985, it was 0.2 percent. The Health Care Financing Administration also supports research at the federal level. Its research is targeted to answer questions that pertain to Medicare and Medicaid patients, but its research budget was less than 0.03 percent of its service budget.¹⁸

Impacts of Health Services Research

Turning from the policy level and issues of funding to health services research at the patient level, advances in how to measure quality have also resulted in, and will in the future continue to result in, changes in how we educate medical students and residents. Health services research studies have documented that patient compliance can be affected by what physicians do. In particular, it is important that physicians routinely assess compliance with medications or other treatment modalities, allow patients to express concerns about what bothers them, and encourage patients to participate actively in their care. For example, scales for measuring physician instruction and effort in increasing compliance have been developed. In low-income populations, if physicians exert high effort (for instance, asking about noncompliance,

responding to patient problems), compliance with medications is over 80%, while with low effort it is 15%. If physicians write out medication instructions and hand them to their patients, compliance is over 50%; if not, compliance is less than 30%.¹⁹ In addition, techniques that help to involve diabetic patients actively in their own care have been shown in a randomized controlled clinical trial both to improve the patients' functional status and to reduce concentrations of glycosylated hemoglobin.²⁰

Health services researchers have proven that tailoring a patient's daily medication regimen results in increased compliance, and we have demonstrated that the complexity of a medication regimen has a direct relationship to compliance. Much remains to be done. Better methods for measuring quality are required. Better and more conceptually sound interventions are needed. More experiments must be done. Nonetheless, courses that use findings from these research activities have been developed and have become a standard part of the curricula of some medical schools and residency programs. However, such courses represent only a beginning. For instance, doctors of the future will need more than just a brief acquaintance with the principles and methods of quality assurance.

Work in measuring quality at both the patient level and the policy level is beginning to change, fundamentally, relationships between the public and the profession. We are on the verge of becoming comfortable with disclosing to the public information about our performance. Measurement tools that can be used to assess appropriateness of care, disease severity, and outcomes of care and statistical tools that allow adjustment for differences in disease severity across populations have made this possible.

Disclosing Outcome of Care

To date, the agency responsible for administering the Medicare program has released two reports on hospital mortality²¹ and is committed to releasing an updated mortality report

annually. Last year's report lists for each hospital in the United States the hospital's overall mortality experience and its mortality experiences for 16 disease-specific categories. Sophisticated statistical tests are used to indicate when a hospital's performance is below or above average. As the field of health services research matures and as experience with adjusting for differences in case mix and severity among patients and hospitals grows, the validity of these comparisons will increase, and they will become more useful.

People (patients) can already obtain copies of last year's report, for it is available for a nominal charge from the Government Printing Office. After reading such a report, patients may ask their physicians questions such as: "Why do you admit to this hospital, as opposed to the one down the block that has a lower mortality rate?" "What do you know about your hospital's mortality rate, and why is it so high?" "Has your hospital's mortality rate changed recently?" How will the medical students that we educate answer such questions?

In the future, mortality information could be used by third-party payers when they decide which hospitals should be part of a preferred provider group or should be part of their health insurance plan. Mortality data could be made available when people decide in which health plan to enroll. They could be used to examine cost-quality trade-offs. If cost of care is twice as high in one hospital as in another, but the outcomes are the same, why should public or pre-tax money be used to pay for care in the more expensive hospital?

Finally, this mortality information might even become physician-specific. Such data might be accessible by a computer terminal from a person's home, with a conversation going as follows.

Computer Voice: Thank you for dialing 1-800 PERFORM. Please use your touch-tone telephone and the code book previously sent you and enter your Social Security number

and the number of the operation that you are scheduled to have.

Potential Patient: Enters 110023672; 12.

Computer Voice: Thank you. So, you are Elizabeth Jones, age 67, and I see from analysis of your claims data that you are in good health and that you are going to have a hysterectomy. Please refer to your code book and enter the numbers of the hospitals that you are considering.

Potential Patient: Enters 11, 10, 9, 8, 7, 60

Computer Voice: The average mortality rate for this operation for a person like yourself is 1 in 100. All the hospitals that you selected have rates of over 5 in 100. (Alternative 1) How did you find these hospitals? or (Alternative 2) Please call Ralph Nadar for advice. *Computer Voice continues:* Please turn on your television, and this information will appear on your screen or, if you like, turn on your fax and receive a written copy of this information.

The technology to accomplish this scenario is already here. Severity measures are available, statistical tools have been developed, data are maintained in centralized files, and computers are fast enough to make all this happen. To use this information wisely will require collaborative efforts between physicians and social scientists. In essence, good health services research and the people to do it are required. Perhaps, if it is done right, we will even like the result, and maybe our enjoyment in teaching and practicing medicine will increase. Maybe before we choose to be treated by our esteemed colleagues for a heart attack, or have bypass surgery in our own institution, we would like to use such a system to have just a quick peek at the information contained in it.

Developing Information about Practice Standards

In addition to information about the outcome of care, data such as those described above on the appropriateness of care and the availability of decision analysis and meta-analysis

tools will almost certainly lead to the development, use, and public release of information about practice standards. These standards will represent clinical guidelines by which decisions regarding whether a service should be either performed or paid for may be judged. The development of these standards or guidelines will change the way medicine is taught and practiced, and I hope academic centers will play a major role in this activity. User-friendly voice-activated computers may help physicians use these guidelines to improve the care they provide. Insurance policies might be written to cover only appropriate care and not clinically inappropriate care, and prospective systems may be developed to prevent reimbursement for unnecessary care. Boards may use information about appropriateness to determine whether a practitioner should be recertified, and licensing bodies may use the information for relicensure. Businesses may help their employees use such information to select their own care, or use it themselves to identify the plans that they will make available to the employees. The availability of practice guidelines might increase patient participation in the doctor-patient relationship and make malpractice reform more likely. Care may become more appropriate, and this may result in the availability of new resources that could be used to provide both insurance for all and coverage of long-term-care services. All of these changes may result from health services research findings that have enabled us to measure the clinical appropriateness of care. Fulfillment of this fantasy, however, will require the performance of health services research studies that are far more sophisticated than those currently available.

Advances in Research

Before leaving this discussion of the impact of health services research, its effects on other aspects of medicine must be considered. For instance, two major changes have occurred in conducting clinical research. First, the

efforts of health services researchers have resulted in the development of better experimental and quasi-experimental designs by which clinical interventions such as prostatectomy can be evaluated.²² Nonintrusive methods for data collections have been introduced. Better ways of combining information from independently conducted small trials have been developed.²³ In addition, advances in clinimetrics have made us better at categorizing patients into clinically homogeneous groups.²⁴

Critically important to clinical research, however, has been the work performed in advancing the measurement of health status and patient function.²⁵⁻²⁷ Until now, virtually every clinical trial performed has used a change in patient longevity or in a physiologic variable such as blood pressure or the size of a tumor as the criterion by which an intervention tested under controlled conditions was judged a success or failure. Thus, physicians were unable to answer patients' questions about the impact of the intervention on their quality of life.²⁸ Part of the reason for this was that valid, reliable measures of health status were not available. After a decade of research in the health status area, however, we are fortunate to have witnessed the development of a number of good measures. Not only can these measures be used to assess whether changes in health policy can affect quality of life, but they can be used to determine whether clinical interventions work. Thus, for patients undergoing treatment for mild hypertension, we can measure the effect of therapy, not only in lowering blood pressure, and thus extending life expectancy, but also on the quality of life.²⁹ We can ask whether a therapy that may not extend life improves its quality, and we can even determine whether therapies produce trade-offs—decreases in length of survival but increases in quality of life, or vice versa. Clinical trials in the future will most assuredly include health status measures as outcome measures, and thus clinicians will have available to them more relevant information in helping their patients decide whether

to undergo a particular intervention or receive a particular service. In order to use such information wisely, medical students and physicians will need to acquire new skills, including how to assess a patient's preferences or utilities for one health status state or another. Performing work of this nature will require the active participation of many academic health centers.

A Demonstration

Finally, the breadth and impact of health services research can be demonstrated by examining the titles of the articles nominated in 1988 for the Association of Health Services Research's award for the best Article of the Year. They include

- The Volume-Outcome Relationship: Does Practice Make Perfect?³⁰
- The Effect of Regulation and Ownership on Hospital Mortality,³¹
- The Use of Hospital Mortality as a Measure of Quality,¹²
- Explaining Geographic Variations by Clinical Information,⁹
- Evaluating Outcomes by Claims Data—The Case for Prostatectomy,²²
- A Randomized Trial of Academic Group Practices,³²
- Extending DRGs to Psychiatry,³³
- Reducing Medication Use by Restricting the Number of Paid Prescriptions per Month,¹⁷
- Impact of DRGs on Hospitals,³⁴
- Insurance and Demand for Health Care,³⁵
- Effectiveness of Fetal Heart Rate Monitoring,³⁶
- Use of Meta-Analysis in Synthesizing Data from Randomized Trials,²³
- How People Care for Common Symptoms,³⁷
- Referral Thresholds for Recommending Coronary Angiography: Specialty Differences,³⁸
- Estimating the Number of Homeless, and³⁹
- Implications of a Tobacco-free Society.⁴⁰

The winning article, "Volume-Outcome Relationships: Does Practice Make Perfect," addressed a very im-

portant issue. Previous health services research has shown that for many surgical procedures and medical conditions, volume is a predictor of outcome. For instance, the ratio of actual to expected mortality for a cardiac bypass operation for a low-volume hospital is 2.1, and that for a high-volume hospital, 0.63; respective figures for hip replacement, transurethral prostatectomy, and acute myocardial infarction are 1.4, 0.77; 1.4, 0.96; and 1.1, 0.92.³⁰ But how do you handle institutions that do too few operations of a specific kind? Do you regionalize care so that volume increases in those hospitals that are selected to perform the procedure? The answer to this question is dependent upon knowing whether the previously identified volume-outcome relationship means that practice makes perfect (provide me more experience at writing papers, and I will do substantially better), or whether the relationship between volume and outcome reflects the fact that high-volume performers were always better, and they thus attracted more referrals (a popular, highly sought-after speaker always had the natural ability to be a good speaker). The research done by Luft and colleagues, using a simultaneous equation methodology, showed that both hypotheses were true.³⁰ For some procedures and diseases, practice makes perfect (acute myocardial infarction, cholecystectomy, and stomach and intestinal operations); for others (aneurysm repair, fracture of the femur, transurethral prostatectomy, and cardiac bypass surgery), it does not.

Conclusion

The conclusion of Luft's work leads me to my conclusion. Doing good health services research, which is still a new and rare activity, is complicated, depends upon teams of physicians and social scientists working together, and produces complex, not simple, results. It requires the involvement of the entire university and the development of strong medical school divisions in which physician-health services

researchers live and work. Thanks largely to the Clinical Scholars Program of the Robert Wood Johnson Foundation, physicians to staff such divisions exist. However, if we are to use them optimally, the national funding for health services research must be increased, and the local intellectual climate and working conditions must be improved. It is worth the effort. It will make a difference. The health of the American people has already benefited and will continue to benefit from such an effort.

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