

HEALTH SERVICES RESEARCH AND HEALTH POLICY FORMULATION

by

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A growing number of operations researchers and management scientists have become interested in studying health care delivery problems in recent years. This is evidenced by the large and increasing number of health applications sessions at ORSA/TIMS meetings. At the same time, the priority given to health services research by the Federal Government has apparently been declining. In this paper, we put forward a number of reasons for this low level of financial support and propose several remedies which we as individuals and as a profession should pursue to reverse current trends.

One of us (Hershey) has spent a year working in Washington with the health authorization subcommittees in both the Senate and House of Representatives. Both of us have worked extensively on grants and contracts from health services research agencies in the Department of Health, Education and Welfare. We each believe that OR/MS can make major contributions to improving health services operations and national health policy, and we hope that our recommendations will contribute to improving the receptivity and impact of OR/MS in this sector of the economy. At the same time, we believe that many of our recommendations apply equally well to other primarily public-sector operations and policy problems for which our profession must demonstrate greater capability and relevance.

WHAT IS HEALTH SERVICES RESEARCH?

Health services research (HSR) is defined as any research that is directed toward improving the delivery of health care. This includes developing greater understanding of health care delivery as it now exists as well as testing the impact of possible changes upon quality, equity of access, and cost. The focus of any given study may be upon organization, staffing, financing, utilization, information flow, evaluation, or some combination of these.

HSR is carried out by individuals who encompass a wide variety of disciplines, including economics, sociology, operations research, systems analysis, epidemiology, social psychology, biomedical science, and engineering. As Williams and Wysong have stated, "HSR is not a discipline, but instead, draws upon a wide range of disciplines to advance its understanding " [18, p. 257].

It is useful to distinguish between health services research which is directed primarily towards national health policy decisions and health services research which is directed towards improving the operations of health services. The former examines governmental concerns such as manpower planning or national health insurance with the intent of explaining why the health care system has certain characteristics or for predicting the probable impact of changes in the system. In contrast to policy research, operations research focusses upon applying analytic techniques to the solution of operating problems such as patient and staff scheduling, financial planning, and regional design and management.

We also find it useful to distinguish between health services research and health services analysis. Health services research usually involves original investigation into specific problems associated with health services delivery

using primary data collection and is relatively long-term. Health services analysis, on the other hand, is generally carried out in response to immediate problems faced by government decision-makers, regional planners, administrators, and providers. The analyst synthesizes existing research and data and must quickly summarize the advantages and disadvantages of alternative strategies for resolving problems. Unlike research, analysis typically relies on secondary data sources. Although there are many exceptions, both policy research and operations research have traditionally been performed in academic and research institutes, whereas policy analysis and operations analysis have been the realm of consulting firms and governmental agencies.

Clearly, the distinctions between policy and operations and between research and analysis are often hard to draw, and many studies go beyond the boundaries of any such simplifying labels. However, the distinctions are useful in discussing the underlying reasons for the low Federal support for health services research.

FEDERAL SUPPORT OF HEALTH SERVICES RESEARCH

Federally sponsored health services research is funded through a variety of different agencies and programs in the Executive Branch. In the Department of Health, Education, and Welfare (HEW), these include the National Center for Health Services Research (NCHSR) and the Health Care Financing Administration. Outside of HEW, HSR is conducted by the Veterans Administration, the Department of Defense, and others.

Because of the complexity of organization of the Executive Branch, the large number of sources of support, and the difficulty of breaking out health services research from other health research sponsored through these sources,

it is impossible to determine the total funding of health services research from federal sources. The NCHSR annual budget for 1978 was only \$26 million [1], down from \$56 million in 1972 and \$38 million in 1974 [17]. But we cannot conclude that total expenditures for health services research have declined. Government officials have estimated that expenditures for health services research are in excess of \$100 million annually from all sources [2, p.127]. Yet this dollar volume of support is appallingly low, particularly when viewed as a percentage of total national health care expenditures or total federal health care expenditures.

In a 1976 HEW publication, The Forward Plan for Health, FY 1978-82, the following statement appears:

(The NCHSR) received an expanded mandate in 1974 for coordination of the Department's health services research activities, as well as for the establishment of an intramural program, and for regional and special emphasis research centers. This expanded mandate has been accompanied by a steady decline in budget and by no increase in positions....The consequence has been the availability of only \$1-2 million per year for new research projects, even with reprogramming, at a time when health care costs have burgeoned to over \$118 billion and the country wants answers about what to do to control costs, allocate resources, improve quality, and increase availability and accessibility. While NCHSR is not the only source of Federal health services research funding, an essential part of its mission is to fill gaps left by other programs with specialized interests. The prospect of a third and fourth year of little money for new awards is having a serious deleterious effect on NCHSR and on the health services research community. [15, pp. 103, 104].

The message is unchanged in 1979 as health care costs pass the \$200 billion mark. Why is this the case? What explains the low priority the Federal Government has apparently given to health services research? What can we as individuals and as a profession do to reverse this situation? These are the questions to which this paper is addressed.

WHY IS FEDERAL SUPPORT SO LOW?

A number of explanations are now given for the low level of financial support devoted to health services research by Congress.

- A. It is often difficult to convince legislators that the research is needed.

This argument has two closely related components. The first component is that legislators are intolerant of social science research in general. They are disappointed with most of the Great Society programs and the large number of demonstration projects spawned by these programs. They believe not only that the programs did not justify their expense, but also that little was learned from the evaluation of these programs to guide future policy.

The second component is that legislators do not seek out good research because they are already decided about what should be done. Decisions are based upon their impact on the political fortunes of the lawmakers. The planning horizons are relatively short. (It has been said that the "long-run" for a Senator is six years and the "long-run" for a Congressman is two years.) They know, it is argued, which positions will generate the most votes among their constituencies, and are interested only in evidence which will support previously held opinions. They do not look for objective evidence which can help shape their positions. Haveman states,

Analysis and evaluation pointing to policies that will maximize net social benefits are of little interest to a policymaker seeking to maximize his private interest in a process in which special interest groups hold enormous power over the variables that determine his well-being. Because his actual incentive structure differs markedly from that which would guide him toward decisions serving the public interest, the welfare implications of policy analysis tend to be given little weight." [10, p. 243].

These arguments are countered by people taking the opposite viewpoint.

They argue that the most effective legislators do seek out good research, not just to support previously held views but also to shape their opinions. The health care system is so complex that they need good research to discover the implications of alternative courses of action. Even if they are interested primarily in re-election, they also feel an obligation to make decisions which are in the long-run interests of the country.

Furthermore, those who hold this view argue that legislators seek evidence about programs which have not yet been properly evaluated, including program goals, activities, spending, and results. An example of this interest is the close scrutiny they have given the negative income tax experiment and the Rand National Health Insurance experiment. Further evidence is the tremendous growth of the congressional support organizations (the Congressional Budget office, the General Accounting Office, the Congressional Research Service, and the Office of Technology Assessment) and private health policy centers (the Institute of Medicine, the Regional Centers of the NCHSR, Interstudy, Rand and the Urban Institute). Congressional members, committees, and staff use these resources extensively for policy analysis and for background in developing legislation.

We think the correct interpretation lies somewhere between these two extreme positions, although it is probably closer to the first than the second. The Congress is extremely complex and heterogeneous, and this can constrain the ultimate impact of policy research. There are over 20 committees with responsibility for different aspects of health legislation, and development of health policy often seems slow and fragmented.

Furthermore, the incentives that influence the behavior of individual members of Congress vary widely. The relative importance of writing good

legislation, assuring re-election, maintaining economic security, attracting strong media coverage, and achieving respect from colleagues will affect whether, and how, the legislator uses HSR.

Thus, the complexity and heterogeneity of Congress along with the incentives acting on legislators seem to impede the usefulness of, and hence the funding of, health services research. But there are other factors external to the structure of Congress which also play an important role.

B. Lack of visibility and tangibility of health services research.

Public officials like to support research which is highly visible, is easily understood, and results in early and dramatic impact. Health services research, even some of the best health services research, can fail on all of these criteria. It doesn't make the headlines that biomedical and clinical research breakthroughs can achieve. The implications of the results can be hard to understand. And the impact may be long term and may appear to be relatively unimportant. We have heard congressional staffers say, "people die from cancer and they die from heart disease, but they don't die from health service." It is difficult for the lay person and public servant alike to grasp the meaning, content, methods, and expected outcomes of health services research.

As federal appropriations for HSR (and social science research generally) have been cut, other health research programs, notably in the National Institutes of Health, have had their appropriations raised considerably [1]*. Categorical programs are politically more attractive than comprehensive programs. These programs can be quickly understood and can have a dramatically visible impact. They have strong lobbies, and it is difficult for a congressman to vote against them.

*There does, however, appear to be a significant decrease contemplated in the 1980 NIH budget.

However, there are some changing aspects to the visibility of HSR with the increased emphasis on cost containment, oversupply of certain health manpower and extensive use of new and ever evolving technologies. As these areas capture the news, HSR gains in importance and some of the studies are beginning to be noted in the popular press and the Congress.

C. Problems with health services research which is being conducted.

Within our own professional organizations (TIMS and ORSA), we have been expressing serious doubts about the applicability of much of our health services research [8,16]. Common criticisms of our research include its theoretical orientation, its invalid assumptions, the tendency to fit the problem to the model, the dissemination of the research primarily to other members of our discipline, little attention to implementation, and a failure to consider social and political factors.

It is interesting to note that other social scientists outside of the operations research profession have been engaged in this same self-criticism. Eichhorn and Bice state, "health services research conducted by university-based disciplinarians has had little impact on policy formulation in government and in the health services industry " [4, p. 147]. Robert Haggarty states, "...most research done by university faculty promotes the career of the individual more than it directly influences policy " [9, p. 130]. Beverlee Myers observes, "health services research has had very little direct impact on or input to the formulation of national health care policies " [12, p. 352].

Any Congressman or Senator serving on the major health committees of Congress and any member of a Federal agency which allocates health services research funding can cite a number of heavily funded studies that have had little impact and produced little usable knowledge. They are becoming increas-

ingly skeptical that the HSR community can provide answers to the complex problems that Congress is asked to help solve. Furthermore, to the degree that health services research is supported, they want an ever-growing role in defining and controlling the research, rather than having the definition in the hands of relatively autonomous disciplines and individual investigators. They argue that policy research has not led to adequate policy analysis. As Myers sums it up, "the researchers formulate their own research questions independent of the needs of policy makers, and too frequently the researchers are reluctant to work on the questions posed by the policy analysts." [12,p.353].

The other side of the coin is that HSR has achieved some notable results in planning, resource allocation, organizational design and evaluation, technology assessment, and many other areas. Unfortunately, these results are a small part of the totality of HSR which has gone on in the past decade. The successful studies have been based in real problems but solved with a view toward their generic impact on other related problems.

D. The interaction between Congress and the health services research community.

Legislators have not completely ignored health services researchers in seeking out answers to critical national health policy questions. To the contrary, each of the committees which are concerned with various types of health legislation interact extensively with officials in executive health agencies, the legislative research support organizations, health services research centers, private foundations, individual researchers, and consumers. In part, this interaction is reflected in the tens of thousands of pages of hearings printed by the committees during any given session of Congress. Even more important are the informal discussions among Congress, the executive agencies, and the health services research community.

The questions asked by legislators are usually direct and to the point. Consider the hearings held on February 10, 1976, by the Sub-committee on Health and the Environment, Committee on Interstate and Foreign Commerce, House of Representatives [17]. The purpose of the hearings was to address the following key questions related to the distribution and proper utilization

of health resources:

"First, how can the financing mechanism of NHI (National Health Insurance) be used to promote the most efficient distribution and utilization of health facilities?

Second, how can NHI impact positively on the efficient use of paramedical personnel?

Third, how can NHI promote equitable distribution and proper training of physicians?

Finally, how can NHI be designed to promote the most effective diagnostic and therapeutic medical procedures, and to insure health care research on both old and new technologies, ..." [17, p. 372].

Statements for this hearing were given by HEW officials and individual health services researchers. As the hearings proceeded, the Congressmen asked about the estimated costs of various NHI bills, the objectivity of such cost estimation, the number of additional physicians needed if NHI is enacted, whether higher or lower physician fees will result from the use of paramedical personnel, the cost-effectiveness of paramedical personnel, the efficiency of different health care delivery systems, and the results from studies of incentives for institutional providers [17, pp. 449-467].

The testimony given on this day was informed and based on the best available research. But, quite often, with cross-examination, the witnesses ultimately had to respond: "We don't have those estimates now," or "The work has not been fully completed," or "I am probably not the right person to ask that question of," or simply "I don't know " [17, pp. 449-467]. The unfortunate fact is that these are, in most cases, the best answers to the questions. The necessary information is all too often not available. More studies must be performed, and more funding must be provided by Congress.

The policy research may well ultimately lead to good policy analysis. Yet the legislators are impatient and find it difficult to understand why the evidence is so often unavailable or equivocal, and as a result are less than generous in supporting further research. It is a classic example of a Catch-22 between funding studies and using the results of the studies.

Another serious problem, from our observation, is the "expert" who cannot speak plain English at a Congressional Hearing. It is incredible to watch economists, for example, using the arcane language of their discipline, recite data about production functions, efficiency differentials, or marginal elasticity. Little wonder that legislators leave some Hearings feeling more confused than when they started. The legislators see this as jargon, and it neither lends credence to the witness's expertise nor adds to the policy maker's confidence in those results which can be understood.

Banta and Bauman have stated, "...there is a vast difference between raw data--which is difficult for the Executive and Congressional staff to interpret, because they have not been trained to do so--and an analysis of that data to display the broad spectrum of possible policy opportunities," [2, pp. 123, 124]. The importance of this translation from raw data to policy analysis in a form that is understandable and useful for Congress is all too often forgotten.

RECOMMENDATIONS

Based on the previous discussion, it is clear that the reasons for the low priority given to HSR by Congress is due in part to the nature of the policy process and in part to the nature of health services research which has been conducted. A number of steps are now suggested which should improve the funding and impact of HSR.

A. More interdisciplinary health services research

Almost every article written about suggested improvements in HSR concludes that future research should be less "disciplinary" and more "interdisciplinary." Banta and Bauman have written, "...interdisciplinary research is all too rare; and it is difficult to achieve, although it deserves to be nurtured," [2, p. 129]. Eichhorn and Bice state, "HSR is necessarily multidisciplinary." [4, p. 137]. Haggarty says, "Practically all health services research is done by workers who belong to one of the established disciplines.... Yet this field usually requires an interdisciplinary team, always a difficult task to accomplish." [9, p. 129].

It is a difficult task to accomplish because (a) the traditional structure and reward systems in many Universities do not favor interdisciplinary research, (b) team efforts usually take more time and energy than individual efforts, and (c) the initial investment in learning to work with other disciplines can be high. These barriers are not easily overcome.

However, as OR/MS researchers, we have an advantage of being educated in a multi-disciplinary manner. Most programs in OR/MS have strong methodological components based in mathematics, statistics, and computer science. In addition, many stress the need for education in economics, management, and the behavioral sciences. Unfortunately, there are few programs which offer the in-depth knowledge of health care required for effective HSR. Amassing all of this knowledge in one individual is a Herculean, if not impossible, task. The researcher in HSR must necessarily work with researchers from other disciplines, acquire a sufficient level of knowledge to communicate effectively, and jointly solve important operational problems which have substantial policy implications.

The researchers from the other disciplines must also acquire a rudimentary knowledge of OR/MS in order for the team research efforts to be successful. Consequently, the OR/MS researcher must also be an educator. These educational-learning roles for all members of multidisciplinary team research take time and energy. It is easy to understand why many potential health services researchers hesitate to make this commitment. But for those of us who have done so, we find that the rewards are great. We have worked with very talented persons from other disciplines. We have developed understanding and theories on problems of importance to large numbers of people both inside and outside of our disciplines. After some successes in research we have found that funding sources, although limited, are available for conducting important substantive efforts. We have seen the integration of new methodological developments, practical applications, growth in knowledge of underlying processes, and the formation of a base of knowledge about operations which can be translated into theories on which effective policy decisions can be made. In the longer run, the personal monetary and leadership rewards are also there because at that point the demand for individuals with talent to do this work far exceeds the available supply.

In the short run, however, there are the previously mentioned costs in time, energy, and the sometimes adverse traditional university reward systems. At this beginning stage of an HSR career, one should pursue methodological and/or process operational research based on phenomena appearing in important HSR problems. This type of research work will meet the short run goals yet at the same time build the foundation for growth and development toward multidisciplinary policy research issues in the longer run. Indeed it is such a path we see being followed by many of the new young leading health services researchers today.

There are many signs pointing to a trend toward better multidisciplinary policy and operations research. As pointed out by Flook & Sanazaro [5, p. 74], there is an increasing tendency by researchers, whether they represent individual disciplines or a mixture of disciplines, to interrelate two or more components or functions in health services in their studies. Many universities are establishing programs directed toward policy research and evaluation, and are experimenting with other educational models which depart from the traditional disciplinary orientation. Outside the university, independent policy research and analysis centers such as Rand, Interstudy, the Institute of Medicine, and the Urban Institute have made important contributions. Finally, following the mandate of P.L. 93-353, five health services research centers and three special emphasis research centers have been funded through the NCHSR. All of these efforts can help considerably to provide the impetus, the respectability, the critical mass, and the stable funding necessary for high quality, interdisciplinary health services research. If at all possible, young HSRers should ally themselves with multidisciplinary efforts at their own or related institutions at an early stage in their careers. It takes time to build bridges.

B. More Explicitly Issue-Oriented Research

In order for health services research to have an impact on policy and/or operations, the researcher must have some understanding of the issues of importance to the user community. Yet, what we see in OR/MS research today is a tendency for researchers to move successively farther from operational or process problems. In the 1950's and early 1960's, simplified interesting models were proposed describing and analyzing certain processes and operations. These models were developed by multidisciplinary individuals or teams of individuals. Today we are in our third or fourth generation of individuals educated in OR/MS many of whom have not seen this problem based modeling effort. Consequently, these individuals are working on third, fourth, or nth generation models. The

research is following incrementally from previous research with a momentum of its own. This stepwise approach to research for its own sake and interest is not necessarily an inappropriate way to learn how to do research. Indeed, it provides the necessary framework for questioning assumptions and drawing sound logical conclusions based on stated hypotheses. However, in order for the research to have an impact on policy and/or operations, the researcher must understand the priorities of policy makers, planners, and administrators.

Furthermore, most funding agencies are becoming intolerant of the "incrementation" approach to research. For example, in its early days, the NCHSR was relatively unconcerned about whether independent investigators placed emphasis on specific problems of policy and decision making. Recently, however, agency staff have been taking a much more active role in defining research priorities and in formulating research plans [18, 19]. Several conferences to establish priorities have been held by the NCHSR, HCFA and other agencies, and activities related to such issues as national health insurance, preventive care, and catastrophic illness have been specified. In addition, all who receive grants and contracts from the NCHSR are now required to write an executive summary of the final report in non-technical language to assist in wider circulation of results. The NCHSR has recently published a compendium of overviews of recently completed research supported by NCHSR [13]. The studies are grouped according to the NCHSR priority issues. The intent is to provide a kind of "shopping catalogue" for users of research to identify and obtain relevant research reports.

The OR/MS individual interested in health sciences research can consult documents such as "Health Financing Research and Demonstration Grants" published by the Health Care Financing Administration [11], Recent Studies in Health Services Research, published by the NCHSR [13], and Research on the Priority Issues of the NCHSR [14].

We have stated that the general attitude of most Congressmen is that the great majority of health services research has far too little applicability to the questions they are asking. Of course many of their questions are policy analysis questions but underlying the answers to policy analysis is a need for policy theory and policy research. In turn, underlying the answers to policy theory and research is a need for an appropriate description and analysis of the actual or proposed operating system.

Many of the important national priorities in health services research have a large methodological and/or operational process component. For example, some of the proposed legislation for National Health Insurance has a heavy emphasis on prevention of disease. What do we know about "optimal" disease prevention? We know that there are certain medical therapies, regimens and changes in lifestyle which, if followed before certain diseases exist or after the diseases are detected, will lead to the postponement or prevention of serious consequences. However we do not know how to do "optimal" mass screening subject to constraints. This requires an understanding of complex stochastic processes and mathematical programming. We do not understand the decision processes of individuals in making choices that will affect their health. We do not know how to "optimally" design or target behavior-modification programs to obtain compliance with the regimens and life-style changes. We do not know how to define or measure many of the economic benefits and costs to the individual, the employer, the insurance companies, health care institutions, and society from screening and compliance programs. But we do know that the solution to these problems require knowledge from OR/MS, statistics, computer science, behavioral science, medicine, economics and management.

In building and analyzing OR/MS models, the researcher should initially make rather general but reasonably accurate assumptions about the economic, behavioral, medical and management aspects of the models. These assumptions should be based on readings and discussions with appropriate researchers in other disciplines. Over time (years) the OR/MS researcher should mature and broaden by conducting research on these assumptions alone and with others.

As the research is conducted and as the questions answered by the research have broader and broader appeal, the academician should reach out in the communication of the findings to larger audiences. The methodological, operational process, and practical but technical results should be published in technical professional journals and books, such as Operations Research and Management Science. The less technical, less jargonistic results which begin to discuss policy implications in detail should be published in the somewhat less technical professional journals such as Health Services Research, Medical Care, Journal of Health Politics, Policy and Law, and Interfaces. These are all publications upon which many promotion and tenure decisions as well as standing in the field are based. However, to make an impact on policy decisions, it is necessary to carry the writing further. The policy and operations implications should be published free of OR/MS jargon in such nontechnical journals as Hospitals and Trustees to reach a large general user audience. Finally, if the issues are of great policy significance, the results may be described in the media and at Congressional hearings.

These latter publications and efforts often do not contribute directly to promotion and tenure unless the first set of publications are also present. However in the long run, these publications make the individual of greater

benefit to the university in terms of recognition, funding, and stature.

C. Better, more concise, precise presentations to the legislative and executive branches.

As indicated above, Congressmen and Senators tend to be skeptical about health services research in part because the individuals who testify at hearings and otherwise interact with legislators are either not willing or not able to translate research findings into public policy recommendations. Busy legislators are like busy executives. They want to know how to get results which satisfy some recognized need. They want to know what they ought to do, why they ought to do it, what the anticipated results are, and what the anticipated results are from alternative decisions.

Many observers have noted that the attention span of a busy legislator is very brief. Yet, like the busy executive, when speaking with an expert or analyst who has a clear understanding of what the legislator really wants to know and who can give this information precisely, the legislator will give substantial time and attention.

The best example that comes to mind of this lies in Victor Fuchs' book, Who Shall Live? [7], which was undoubtedly the health care book most widely read by members of the Congressional Health Committees during the 94th Congress. The book was quoted widely during 1975 and 1976 in Washington, in large part because the writing is clear to the layman, the data are presented coherently, and the message cannot be missed. It serves as a model for others who wish to undertake the role of translator from research to policy.

It is this role of researcher on operations to researcher on policy to translator of policy for the decision makers in Congress and the Executive Branch that we are proposing for the OR/MS researcher turned health services researcher. It is an ambitious role requiring multi-disciplinary efforts and excellent research and writing skills.

Not all health services researchers need to fill this extended role and indeed there is a demand for the model builder and analyst who works on problems of his/her own interest or as a member of a larger team. However, those who successfully attempt the full cycle of research activities from operations to policy to translator to operations find it exciting both in the range of issues and diversity of people encountered and also in the demands on the researcher to constantly broaden and deepen his/her research skills and knowledge.

D. The need for "concentrating" political pressure for Health Services Research

Objective, non-partisan analysis is often less influential in policy deliberations than the pressures from special interest groups. HSR is a perfect example of an area with potentially great importance at an aggregate level but with benefits which are scattered diffusely throughout the population. The lack of concentrated interests lobbying for greater support for HSR goes a long way toward explaining its relatively low levels of support.

Although the work in HSR is diffused across many disciplines, some pressure may be concentrated through organizations such as the Health Applications Section of ORSA, the APHA, AUPHA, American Medical Association and other broad based organizations with an interest in better health care systems. Consequently, the researcher should participate in the activities of these organizations. Also, if possible the researcher should participate in the studies performed by federal, state and nonprofit agencies, hearings on HSR related issues, and study and review sections.

However the best way in the long run for HSR to gain support and improve its impact is to deliver quality useable results which solve some of the many important operations and policy research issues facing the United States. This may be the most effective way for us as individuals to "concentrate" political pressure for HSR.

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