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THE PURPOSE AND USEFULNESS OF HEALTH SERVICES RESEARCH

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In the United States, research into the functioning of the health care system is said by almost everyone to be very important. Yet it is under serious attack. Congressional appropriations for the National Center for Health Services Research have been cut in half in the past four years, and recently one of the leading health services research workers published an article that was extremely critical of the field of health services research since it had not produced any major breakthroughs or changes in health status or in the organization of practice. We would be remiss at this international meeting if we did not examine the causes for such ambivalence. An uncritical praise of what health services can do would not serve our purpose as well as examining some of the problems and impediments.

First, what is the field health services research? A major impediment has been the multiplicity of definitions, the fuzziness of the boundaries between health services research and other related research. A recent definition which I believe services the field well is "health services research is inquiry to produce knowledge about features of the structure (mechanisms), processes (functions), or effects (outcomes) of the provision of personal health services." (Figure 1). Figure 2 shows this outline and illustrates examples of information related to structure, process and outline. There are several closely related fields which at times overlap with health services research and certainly should inform health services research. (Figure 3). Especially related is behavioral research which deals with such matters as why people use health services, and what they do to maintain health through

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FIGURE 1

DEFINITION OF HEALTH SERVICES RESEARCH

HEALTH SERVICES RESEARCH IS INQUIRY TO PRODUCE KNOWLEDGE ABOUT FEATURES OF THE STRUCTURE (MECHANISMS), PROCESSES (FUNCTIONS) AND EFFECTS (OUTCOMES) OF THE PROVISION OF PERSONAL HEALTH SERVICES.

FIGURE 2

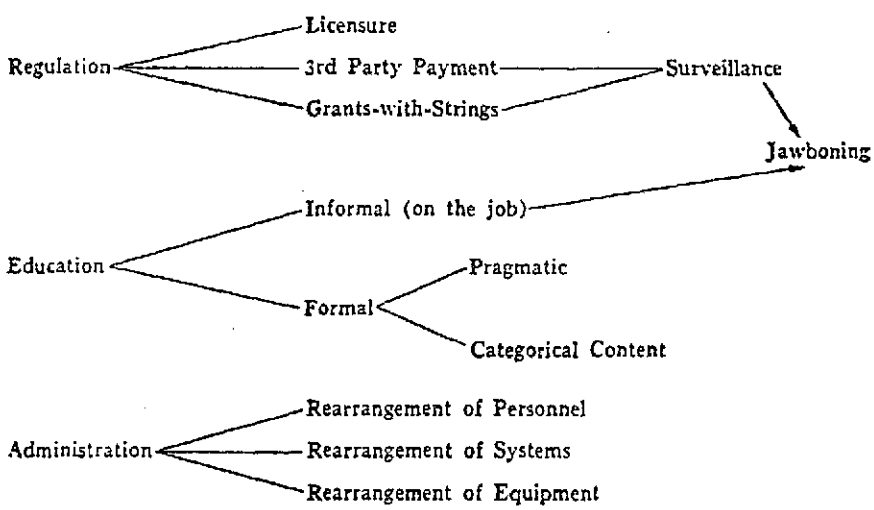


FIG. 2. Mode of intervention.

FIGURE 3

FIELDS CONTRIBUTING TO HEALTH SERVICES

HEALTH SERVICES RESEARCH

STRUCTURE - FUNCTION - OUTCOME - POLICY

EPIDEMIOLOGY - ETIOLOGY

EFFICACY - CLINICAL TRIALS - TECHNOLOGY ASSESSMENT

BEHAVIORAL RESEARCH - HEALTH AND ILLNESS BEHAVIOR

BIOMEDICAL

healthy lifestyles and preventive services, compliance with health regimens, and factors that determine health status. Slightly more removed but related are fields such as epidemiology, clinical trials, technology assessment and studies of efficacy of medical care. Even more removed, of course, is biomedical research. While I believe that it is useful to carefully define boundaries of a field, it is especially important in this field not to isolate workers who are engaged in health services research from the related and often overlapping fields. The dilemma between tunnel vision targeting of research and therefore greater opportunity to pursue a narrow issue in depth versus a broad interlocking but often superficial study is always a difficult tradeoff. Neither one or the other approach alone will be optimal. Likewise there should be a link between biomedical and epidemiologic research and its application to a delivery system. As an example, an early study I did demonstrated the correlation (probably causal) between stressful life events and susceptibility to streptococcal infections that was epidemiologic. Later we demonstrated the doubling of use of some types of health services at times of stress. That was descriptive and analytic health services research. Now we are studying the effect of introducing family support services to prevent the harmfull effects of stress. That is intervention health services research.

Who does health services research? At this point, health services research is not a discipline and is therefore performed by people from a wide number of disciplines, including medicine, sociology, epidemiology, biostatistics, economics, operations research and other disciplines. In most instances health services research must be done

by groups of people representing these various disciplines. For purists, this lack of a discipline and the multidisciplinary nature of the team that must carry out research is frustrating, but health services research is far from pure!

What are some of the other difficulties of health services research? Before describing what health services can accomplish, it is important to face up to other difficulties. The field has suffered from too great expectations. The problems faced in delivering health services of high quality at a cost society can afford to all its citizens is an extremely complex social goal. Indeed, these may be incompatible social goals. They have resisted an optimal solution in all countries. To expect health services research to have solved these difficult problems in a short period of time is a much too ambitious undertaking. Health services researchers and politicians have been guilty of raising expectations which could not have possibly been meet from the field. Secondly, the field is young, has a relative lack of experienced researchers, and a considerable lack of reliable methods or even underlying conceptual bases or theories. While medical research has had a century of development and fifty years of intense investment, production of skilled researchers and methodologies is only now becoming as fruitful as its enthusiasts proclaimed a generation ago. Health services research needs a long stage of investment in people and methods before it can be equally productive. Third, health services research deals with problems that have strong, deeply held beliefs associated with them. It frequently attacks powerful groups in society such as when it studies unnecessary surgical procedures or excessively long hospitalizations. The powerful groups under attack will quite reasonably resist the conclusions of such

research. Fourth, health services research lacks a constituency of either workers in the field or buyers of its product. I have mentioned the lack of a large well-trained body of researchers as one factor. To the degree that findings attack strongly held prestige groups in society such as surgeons; it also diminishes its constituency, and to the degree to which it fails to answer problems of increasing costs in an easily solved way it lacks political constituency. There is a misconception in my country that health services research can lead to major policy decisions such as should the United States develop a national health insurance. In my view health services research is extremely important for providing the background information upon which policy decisions can be made and in illuminating the functioning of new services once they have been institutionalized, but it cannot and should not be expected to make or direct major policy changes any more than research can determine whether a capitalistic or socialistic form of government is better!

The purpose of health services research is therefore to develop a knowledge base or background information of the functioning in an existing health services system to inform but not dictate policy decisions, to determine effectiveness of innovations in services and most important to allow fine tuning of the system once a policy (a political decision) has been made.

Methods Used in Health Services Research

There are relatively few basic methods that can be used in health services research. (Figure 4). These include: (1) the use of existing records, such as data from encounter forms or reimbursement records to determine use of services; (2) interviews, usually household random sample

FIGURE 4

HEALTH SERVICES RESEARCH

Methods

Types		Examples
Record Reviews	-	Hospital - Physician Offices
		Discharge Diagnoses Drugs - Other Therapy Demographic Disposition
		Vital Statistic Records
		Audits - Utilization Reviews
Observation	-	Time Motion
		Examination
Interviews	-	Household
		Utilization Attitudes
Paper and Pencil	-	Projective
Mathematical Models	-	Systems Analysis
		Operations Research

interviews, but may include interviews of providers as well; (3) observational studies, in which the researcher observes the process or outcome of medical care and records these findings; (4) the use of various projective tests or tests of health status, and (5) mathematical modeling, using data from these four sources. There is a need for development of additional methods in this field.

In all such studies, there are important issues of reliability and validity of the information obtained. It is important to remember that all methods, whether in biomedical research or in health services research, have something less than perfect reliability. For instance, repeated tests on the same sample of blood for hemoglobin values or replicated readings of roentgenograms yield anywhere from 15 to 30% variation from one test to another even when performed by the same observer on the same sample (Figure 5). It is obviously important to understand the degree of reliability of any test used before drawing conclusions from a study. Differences observed between populations may only represent the range of reliability.

What Has Proved Useful in Health Services Research?

The discussion of the purpose of health services research and the limitation of current methods may sound rather negative about the field but they are put forward starkly to emphasize the realism that I believe is necessary to understand the proper role and usefulness of health services research. Now let us turn to some examples which have proved useful to illustrate the limited but still important role of health services research.

FIGURE 5

OBSERVER VARIATION

Between Observers and Upon Repeat Tests

	% Variation
Blood Pressure:	
Systolic	45%
Diastolic	22%
Chest Roentgenographs:	
Different observers	32%
Same observers	5%
Routine Hemoglobin	20%
Standardized Medical History	13-42%
Psychiatric Diagnosis:	
Duration Symptoms	40%
Family History	15%
Social Data - Test - Retest	32%

(A) Studies of structure of health services

A basic data system is necessary to make rational decisions about the health services system. For instance, in many areas it is not known how many physicians practice, where their practice is located, or their various specialties. For instance, in my own state of Massachusetts it was not until 1976 that we had a current survey of the numbers of doctors practicing in the state. Up until that time, all physicians who had ever been licensed in the state were still kept on the records! It was not known how many had died, or moved from the state. Now, with biennial registration, it is possible to know the number and location of physicians--a simple-sounding but extremely important bit of information about the structure of the health services system, without which no rational planning can occur.

(B) Process studies

Data on the use of health services by various population groups is a major type of research. In the United States, the national health survey which is carried out continuously on a random sample of families for the entire country has given us extremely useful information on the volume and types of services by age for the entire country. However, since it is a national sample, it is collected on very small numbers for any region, and the smallest unit of the country for which such data can be broken down is a region which may include as many as 30 to 50 million people. This is clearly too large an area and too large a population upon which to make detailed local plans. When we began our studies of child health in a county of three-quarters of a million people in upstate New York (situated around the city of Rochester) there was no information on many health services were provided to children in different settings or to different

age and racial groups. Thrcugh a combination of random sample household surveys and random provider surveys, we were able to obtain quite accurate estimates of the volume of child health services provided and whether children in different categories had a central source of care or not. (Figure 6). These surveys were begun in 1968, and while a single year's survey proved extremely interesting, the usefulness of such surveys was greatly enhanced when they were repeated at three to four year intervals, and thus sequential data was obtained. For instance, in this study in 1968 it was ascertained that 8% of all children had no source of care, while in 1975 after the introduction of four neighborhood health centers and production of additional health care providers, this number had fallen to 4%. In some countries where a national health insurance program is in operation and all services are reimbursed through a payment record, this data can be obtained from this record source at much cheaper cost than resorting to household surveys. Utilization data based upon payment records still does not tell us who is not receiving any care at all, a most important bit of information. Utilization data based upon household surveys therefore remain the backbone of much health services research.

(C) Outcome studies

In the ideal word, outcome should measure health status in different population groups and relate it to services provided. But health status, once we move from death, has been a very difficult thing to measure. Therefore we have resorted to output rather than outcome studies and compared various outputs to various interventions. For example, in out studies in Rochester, New York, we were able to compare impact of

FIGURE 6

TABLE I

ESTIMATED UTILIZATION RATES*

	Rate per Year			*Total Volume*		
	1967	*1971*	*1975*	*1967*	*1971*	*1975*
Private						
Phone	1.45	1.24	1.53	331,000	312,980	371,900
Office	3.82	3.23	2.89	871,000	815,250	702,000
Home	0.11	0.07	0.00	25,000	17,670	...
Total private	5.39	4.54	4.42	1,227,000	1,145,900	1,073,900
Public						
Emergency	0.55	0.31	0.31	125,400	78,240	75,980
Outpatient	0.39	0.43	0.20	88,900	108,530	49,280
Health center, etc.	0.04	0.15	0.69	9,100	37,860	167,020
Total public	0.98	0.89	1.20	223,400	224,630	292,280
Schools, other	0.18	0.12	0.13	41,000	30,290	30,300
Total	6.56	5.55	5.75	1,491,400	1,400,820	1,396,600

*Data based on populations of children, 0 to 17 years old, in Monroe County, New York, 1967 through 1975, in a two-week recall survey. Estimated child populations: 1967, 228,000; 1971, 252,000; 1975, 242,000.

the development of a neighborhood health center in a poverty area, upon the rate of hospitalization of children. We were fortunate in having a comparison area of similar sociodemographic nature which did not have a health center. We were able to show that the introduction of a health center reduced the number of days of hospitalization by one-third as compared to the comparison area. (Figure 7).

(D) Interface studies

While the definition of health services research has become somewhat more restricted and defined in recent years, it is important that this field of research not become isolated from related areas of research, especially behavioral research. For a fuller understanding of the way the health services system works, such studies as compliance with medical regimens, the reasons why people use health services or do not, and the way in which people take measures to protect their own health are very high priority in understanding and improving health services, but now lie outside health services research. Wherever possible, programs that synthesize or link studies between the various disciplines promise to produce more useful research than those which are more strictly limited in one area.

Implementation of Research

Health services research is essentially a practical indeavor rather than an academic exercise. It must have a mechanism for feedback loops which translate the findings into program change and then re-evaluate the effects of such program change. These steps are illustrated in Figure 8. This process often involves political action to achieve change, as well

FIGURE 7

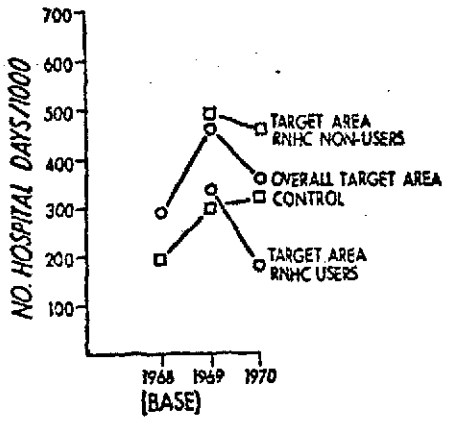
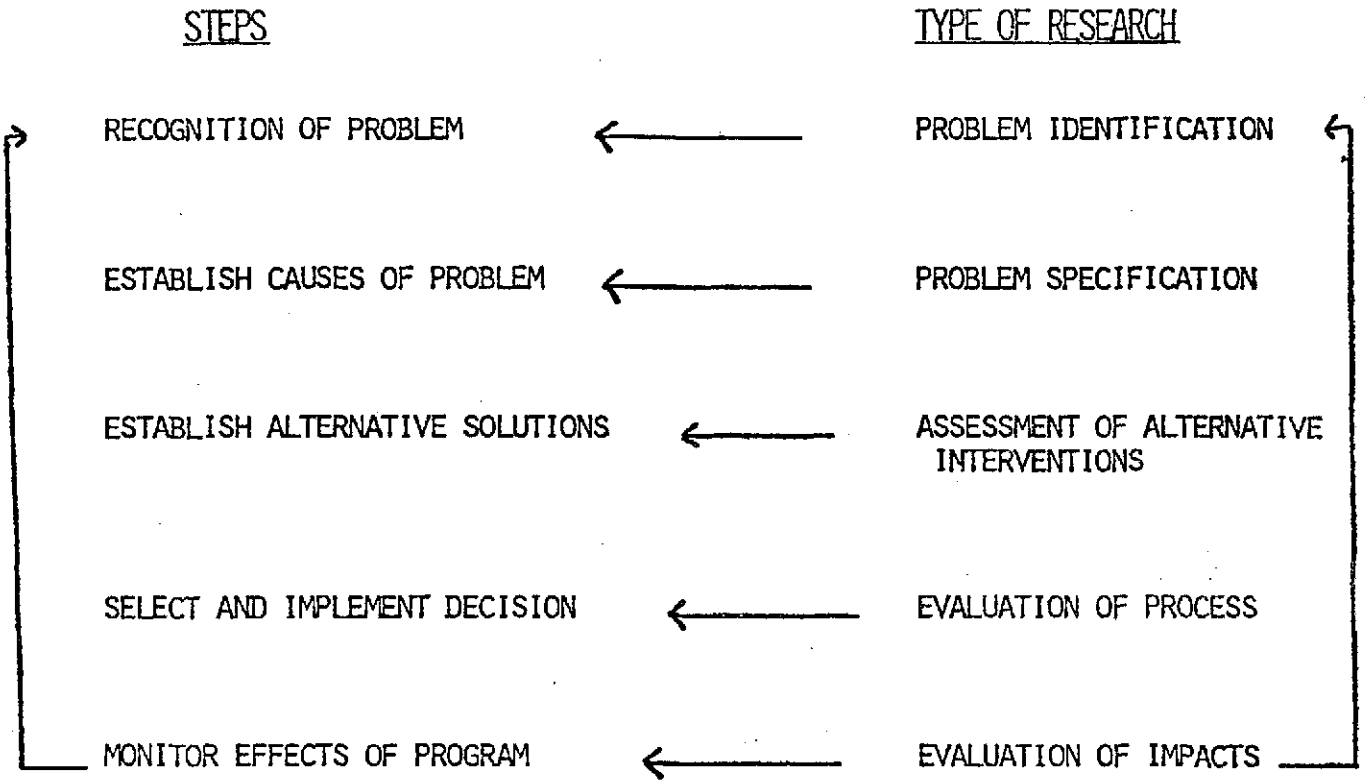


Figure 9D.1. Child hospital days/1000 (SMH and TGH) by residence, by year, by Rochester Neighborhood Health Center user or control status (Klein et al., 1973a).

FIGURE 8

STEPS IN HEALTH SERVICES RESEARCH



as scientific knowledge. But without a plan for implementation of research studies in the field of health services, they have limited utility.

Summary

Health services research is one part of research related to improving the functioning of the health system and the health status of the citizens of any country. It cannot be expected to set the policy for a country, but it can help improve the functioning of a service once the policy has been set. It is a practical endeavor, which has usefulness only to the degree that there is a feedback system through which its findings can be implemented.

-- Preparation of an epidemiological surveillance model consistent with a country's administrative and political structure.

3.6 Tuberculosis. Academic credits = 4; Practical credits = 2

-- Epidemiological and clinical aspects and methods of control
-- Indicators for planning and evaluating tuberculosis control programs
-- Application of an epidemiometric model to the planning and evaluation of BCG immunization
-- Application of an epidemiometric model to the planning and evaluation of research and treatment
-- Project for an epidemiological surveillance service

3.7 Health Planning. Academic credits = 2

-- Definition
-- The planning process
-- Implementation of a model for planning the medical services of IMSS

3.8 The Zoonoses. Academic credits = 4

-- The concept of zoonosis
-- Classifications
-- Brucellosis
-- Cysticercosis
-- Leptospirosis
-- Toxoplasmosis
-- Rabies
-- Venezuelan equine encephalitis

3.9 Medical Information Systems. Academic credits = 8
Practical credits = 4

-- Development of a national health service
-- Machinery for budgeting a national health service
-- An ad hoc information system for a national health service.