Redefining the Health Problem and Implications for Planning Personal Health Services

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PLANNING, as a process, involves identifying the problems and priorities, specifying the alternate means available for solving or reducing the problems, selecting particular procedures and instruments from among possible alternatives, and delineating the objectives and targets to be reached by applying the procedures and instruments (*1*). When the problem identified pertains to health and the resources used belong to the health services system, we speak of health services planning.

In this process, the health resources—both personal and environmental health services—must be matched with the health problem—the need and demand for them. Thus, two sides of the epidemiologic fraction evolve, the numerator or health resources and the denominator or health problem. Depending on whether the setting is a community, city, region, or country, the process is called community, urban, regional, or national health services planning.

The numerous meanings of the terms employed in the definition of health planning, particularly "health problem" and "health resources," account for the broad variety of interpretations attached to health services planning. Furthermore, the interpretations have altered during the course of time to correspond to the changes in the social, economic, and political parameters that determined them.

The Meaning of Health Problem

What is meant by health problem? What is the denominator in the health planning fraction? What is the population for whom the health services system should be responsible? Answers to these questions have changed over the years as

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medicine's tasks and responsibilities have been continuously redefined.

Initially, "health problem" referred only to the exposed part of the clinical iceberg (*2, 3*) which depicts that part of the population with known or declared morbidity that seeks and obtains care and of whom the health services system is aware. It includes, for instance, the 27 persons with cases of anemia, the 32 with hypertension, the 25 with urinary infection and other conditions seen by the average general practitioner in England from among his practice of approximately 2,500 patients (*4*). (At several points in this article, references have been made to the English experience because in these instances, the situation is similar to that in the United States and there was no equivalent U.S. data.)

In the process of "redefining the unacceptable," to borrow Sir Geoffrey Vickers expression (*5*), the initial definition of the denominator or health problem has been expanded to include the submerged part of the iceberg; that is, those patients who need care and cure but do not seek or obtain it—those with unknown or undeclared morbidity. According to the new definition, the one-to-one physician-patient relationship is broadened to what has been defined as the collective concern of all physicians for all health problems of the entire population they serve (*6*). If applied to the general practitioner in England, he should then be aware of and responsible for the additional 218 unknown cases of anemia, 162 cases of hypertension, 140 cases of urinary infection and other cases of which he is unaware but which exist in his population (the denominator) of 2,500 persons (*4*). Indeed, increasing evidence testifies that everywhere, regardless of the level of economic development and the type of medical care organization, the size of the unknown morbidity—the submerged part of the iceberg—far exceeds the known morbidity or exposed portion. Bogatyrev in the U.S.S.R. (*7*) and Wolfe and associates in Canada (*8*), for instance, reached surprisingly similar conclusions regarding quantitative relationships between the known and unknown portions of morbidity in surveys of different populations. However, these researchers worked independently, and any comparisons of their observations must be made with caution.

In addition to known and unknown morbidity, the denominator for which the health services system should also be responsible has been expanded to include two additional areas; potential morbidity, which involves the presymptomatic or silent morbidity characterized by early stages of disease, and the vulnerable population—that population in which, under certain circumstances, morbid conditions might develop. Examples of such groups are married women at risk of developing cervical cancer; smokers at risk of lung cancer; or workers in certain occupations at risk of silicosis, lead absorption, or dermatitis.

Figure 1 shows the levels of the clinical iceberg and defines the size and nature of the clinical health problem.

Paralleling the enlargement of the iceberg's size, there has been a redefinition of its content. Thus, areas of social concern once considered outside the responsibilities of the health services—such as alcoholism, drug addiction, juvenile delinquency, among others—are now increasingly being included in their scope. The broadened meaning of sickness, its care and cure, has involved new areas of responsibility which, in turn, require new approaches and resources in medicine.

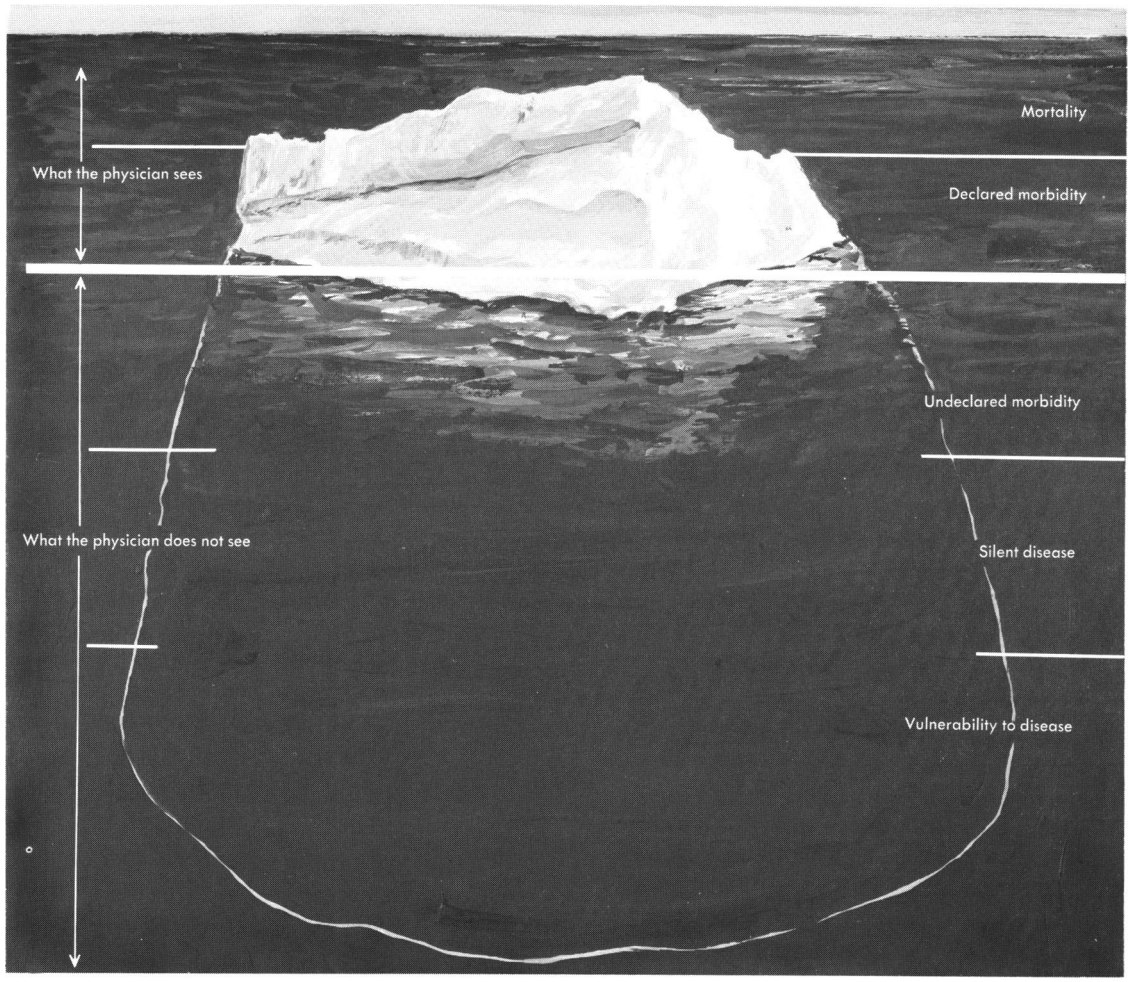
Using this redefinition of medical responsibility, the English general practitioner, for instance, should be aware not only of the normal social

Table 1. The social iceberg—what is happening to patients as people

Number	Phenomena
	Part 1. Annual vital statistics in an average general practice in Great Britain
17.....	Marriages
1.....	Divorce
41.....	Births: 13 at home and 28 in hospital, including 16 primigravidas, 1 stillbirth, 1 illegitimate
37.....	Deaths: 10 cardiovascular, 5 cancer, 4 cerebrovascular, 1 violent, 17 road accidents
	Part 2. Annual social ills in an average general practice in Great Britain
100.....	Receiving national assistance
100.....	Aged over 75
50.....	Elderly persons living alone
40.....	Broken homes, children under 15 living with 1 parent
25.....	Severely deaf
5-10.....	Problem families
5.....	Registered blind
4.....	Known juvenile delinquents
4.....	Known chronic alcoholics
3.....	Known illegitimate births
2.....	Disabled and unemployable
1.....	Adult incarcerated
15.....	Male homosexuals
2.....	Cases of venereal disease
9.....	Suicide attempts
4.....	Abortions treated
10.....	Abortions not treated

SOURCE: Adapted from references 3 and 4.

Figure 1. The iceberg of disease



SOURCE: reference 3.

events in his community (table 1, part 1) but also of the social ills that would have a direct or indirect bearing on the nature and type of his practice; that is, of the exposed as well as the submerged part of the social iceberg (table 1, part 2).

In summarizing, the concept "health problem" or "area of responsibility of the health services" has been redefined to include the clinical health problem and its components—known morbidity or demand, unknown morbidity, potential morbidity, and the vulnerable population—as well as the social morbidity.

The Meaning of Health Resources

Conceptual functions of the health resources. The expression "health resources" denotes those resources that provide both personal and environmental health services. In this paper, however, the definition is limited to personal health services, which constitute (9):

> any type of care provided by physicians, nurses, dentists and allied health professionals without distinction being made between preventive, diagnostic, therapeutic and rehabilitative services or between the physical, emotional and social components of health and disease.

Intervention by the health resources is aimed at maintaining the state of individual and community impairment or disease as close as possible to the state of ideal health (fig. 2). Depending on the moment when the health resource intervenes in the health problem, it may be characterized by three different functions:

1. Primary prevention or intervention before the morbid condition appears, aimed at avoiding or postponing the appearance of disease in the vulnerable population, by what Morris defines as

the removal of the precursor disorder through specific measures against causes in predisposed subjects and by general and specific measures applied to the population to promote health and prevent disease (*10*).

2. Secondary prevention or intervention before the symptomatology fully develops, aimed at discontinuing or postponing that development.

3. Tertiary prevention or intervention aimed at controlling and reducing the level of physical, emotional, and social disability and the dependency of the patient once the disease and symptomatology have fully developed.

Actually, the therapeutic and curative intervention realm of today's clinical medicine—repair medicine—may be considered, for the most part, as only one aspect of this broader intervention or tertiary prevention.

In these definitions, the term "prevention" has been used to characterize the broadest interpretation of intervention designed to maintain the maximum level of ability according to the biological, physical, social, and material constraints on the person within his community. In figure 2, prevention is defined as any intervention aimed at maintaining line B—disease—as close as possible to line A—health.

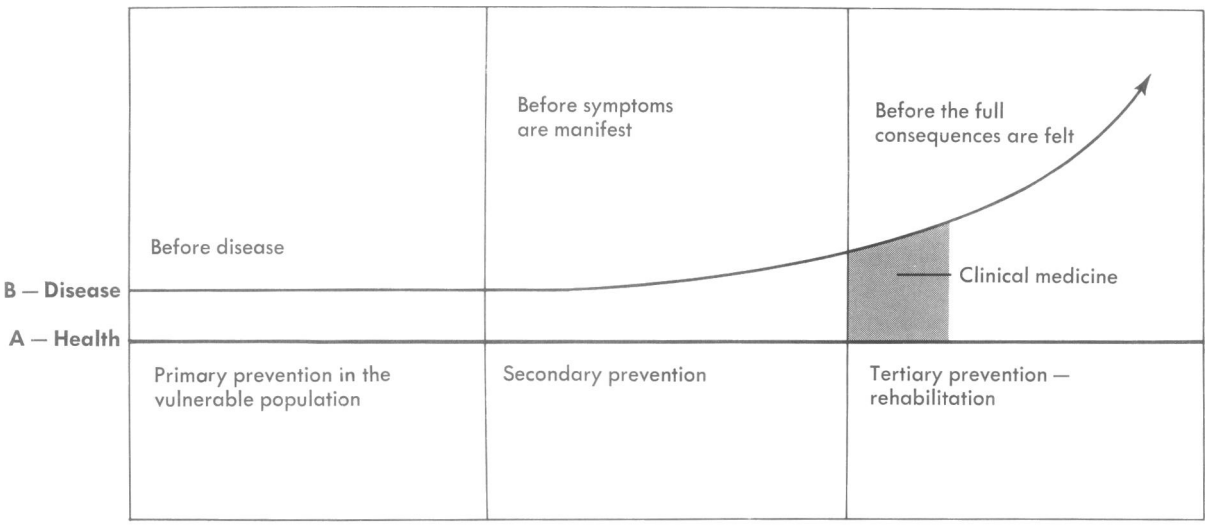
Current responsibilities of the health resources. A functional analysis of the resources operating within the health services system reveals three main sectors—general medicine (ambulatory or general medical care), hospital and institutional medicine, and public health services. This tripartite structure exists in many western industrialized nations and in the developing countries as well.

Figure 3, adapted from Logan (*3*), indicates the relationship between the problems and the current responsibilities of the three main sectors of the health services. Question marks indicate those functions where there is an unclear area of responsibility.

The curved bar (both light and dark portions) in figure 3 illustrates the imaginary curve of the evolution of disease. The curve begins on the left with a healthy but vulnerable population in which a morbid condition might develop when exposed to certain circumstances. Once the disease appears, the first stage is usually silent and represents presymptomatic morbidity that, if allowed to develop, might flourish into full morbidity. This disease might then be translated into demand, depending on the patient's perception of it, response to it, and the availability and accessibility of the health resources to him. Above the waterline of the iceberg (the wavy horizontal line) is the known morbidity or demand, with the patient under the direct responsibility of the various sectors of the health services system. After the patient is discharged from the system (on the right side of the disease curve), there remain his physical, emotional, and social rehabilitation and his readjustment to an able life.

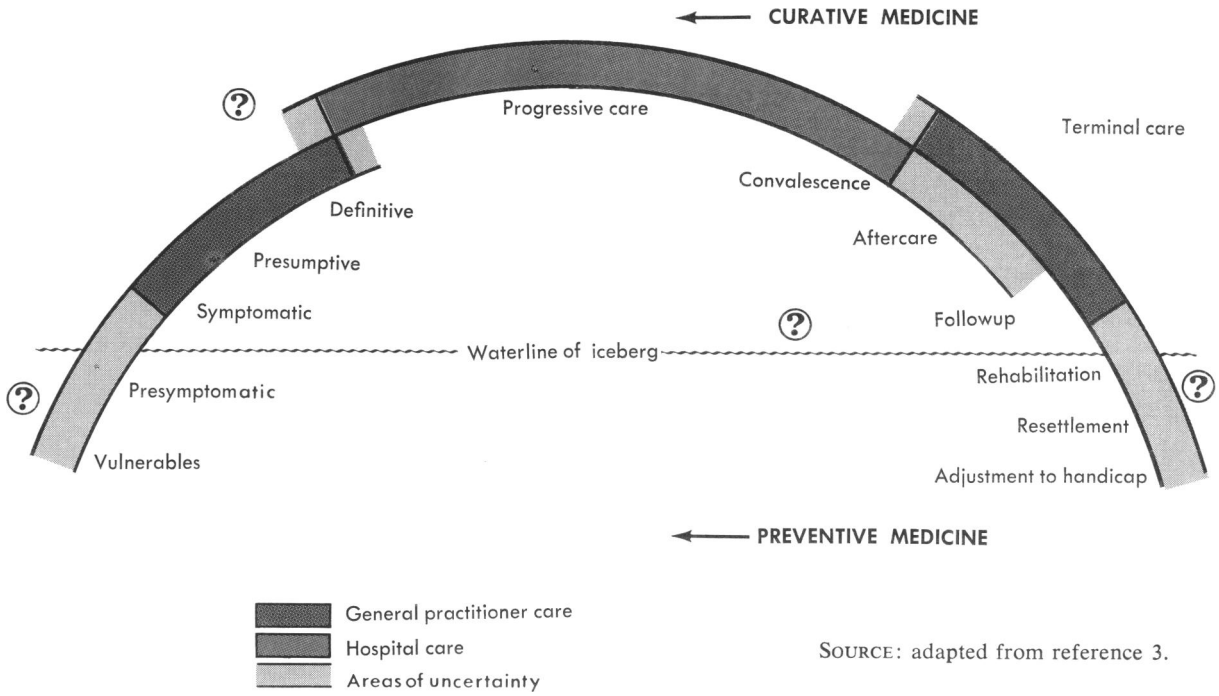
Within the evolution of disease, as illustrated by the arc in figure 3, who is responsible for the patient's care? On the left side of the demand curve, where need is translated into demand in the portion of the iceberg above the waterline, most of

Figure 2. The moment of medical intervention



SOURCE: adapted from reference 4.

Figure 3. The spectrum of medical care



SOURCE: adapted from reference 3.

the care is provided by general medicine or ambulatory medicine (also called community medicine in this paper), while hospitals usually treat the demand that requires more intensive or more attentive care or both.

Once the patient is discharged from the hospital and shifts to the convalescent stage (the right side of the demand curve in figure 3), the area of responsibility for followup or aftercare is not clearly delineated. He may be under the care of the general practitioner, as in the National Health Services in Britain, or of the same physician who treated him while hospitalized, as in the United States (if the physician had hospital privileges). The U.S. arrangement provides continuity of care that is not possible when the physician changes according to the patient's horizontal or vertical position.

Curative medicine, then, has been the aspect of medical and hospital services which has dealt with this demand or exposed portion of the iceberg. However, when the full size of the health problem is discerned, curative medicine becomes but a small part of that problem. Figure 3 shows the unknown areas of the health problem (the submerged portion of the iceberg) for which responsibility for care is sometimes vague and poorly delineated. On the left side of the submerged part of the iceberg in figure 3 is the vulnerable population, for instance, for which care or primary prevention, as listed by Morris (*10*), is provided through legislation, environmental engineering, educational policy, the mass media, new social attitudes to leisure, and the presentation of alternate life styles. This care has traditionally been the domain, in a limited sense, of the public health sector. Frequently, another function of this sector is secondary prevention, including the much debated screening programs (*11*) for early detection of early and mild cases. Also evolving as part of the screening program is the detection of unknown morbidity. However, clear assignment of responsibility to discover this portion of morbidity or secondary prevention, as well as for primary prevention, is lacking in most health services.

On the right side of the disease curve is what is described as the great challenge in today's medicine; the tertiary prevention or rehabilitation of the patient—not only physical, but emotional and social as well. It is the care needed, for example, by the stroke patient, the alcoholic, or the drug addict to rehabilitate them to a fitting life. And it is particularly on this side of the spectrum of care that medical care requires a close working relationship with the social services. Nevertheless, at present, the responsibility for this care has been diffused among social welfare services, public health services, hospitals, and so forth, and no one

agency holds a clear mandate for assuming this function. Most of these services have been provided by social and welfare agencies coordinated with or attached to the public health services.

Curative medicine has been defined as the part of medicine attending to the exposed portion of the iceberg while preventive medicine has usually been responsible for segments of the submerged portion. However, the distinction and division between curative and preventive medicine is artificial and hard to justify in any medical sense. Indeed, the current assumption of responsibility by the different sectors of the health services reflects more "history and politics, sectional pressures and sheer inertia" (*10*) than logic and rational allocation of resources.

Planning Personal Health Services

In planning personal health services, the resources required have been calculated by various methods and approaches (*12*). The one used most frequently is the simple extrapolation of current demand and supply to the future along with recommendations for those changes needed to achieve a balance between both. However, this approach does not specifically alter the present distribution of responsibilities. Highly pragmatic, it merely extrapolates the structure and function of the present system, projecting the status quo—multiplying its weaknesses along with its strengths—into the future. This approach is an agent of quantitative but not qualitative change.

In the author's opinion, however, a more preferable approach is a modification of the previous one, defined here as indicative planning, embodying a qualitative as well as a quantitative analysis of demand and supply.

Indeed, in addition to a quantitative survey of present and potential resources, indicative planning includes a job and functional analysis of these resources. Once the quantitative and qualitative analyses are made, the second step in this approach is to define what functions and resources are needed within the desired delivery system as opposed to those that currently exist within the present system. The third step is to formulate recommendations for stimulating change from what is available to what is defined as desired and required in different time periods. This approach to planning assumes that there is a decision-making process within the planning experience that defines and selects those requirements. Depending on the locus of decision making in this process, it is called either centralized or decentralized planning.

Functional Analysis of the System's Sectors

In indicative planning, the first step is to analyze the different activities that represent the various functions undertaken by the three main sectors of the health services system: ambulatory or general medical care, hospital care, and the public health sector. The following paragraphs briefly describe the contents of these sectors.

Ambulatory, general medical care, or community medicine. Within this sector of the health services system, the general practitioner or community physician is the professional who usually controls the input into the system. Regarding distribution of physician activities, Scott and co-workers (*13*) in Scotland, Wolfe and co-workers (*8*) in Canada, and Bogatyrev (*7*) in the Soviet Union have independently studied the content of the practice of the general practitioner or primary care physician. In a sample of Scottish physicians, Scott and co-workers found that talking and listening were the major activities in 54 percent of patients' visits; prescribing in 38 percent; and direct action, such as dressings and injections, in 11 percent—findings which were very similar to those of Wolfe and Bogatyrev. (The aggregate was greater than 100 percent since the physician often engaged in more than a single major activity during patients' visits.)

A question that immediately arises in an analysis of these practices is how much of the activities carried out by these physicians could be done, equally well and less expensively, by other persons. Indeed, Beasley's survey of a sample of physicians' practices in Kentucky indicates that a considerable portion of their work could be delegated to other health professionals, and it also implies a readiness of physicians to transfer some of their responsibilities to others (*14*). He found that 86 percent of them approved the delegation to nurses of history taking; 80 percent, the delegation of active therapy procedures; 51 percent, of physical examination procedures; and 62 percent, of some obstetrical procedures.

The type and amount of delegation depend on the type of practice and specialty. Arguments in favor of the delegation of functions stress the better use of resources, so that physicians could be free to employ their skills in tasks requiring their specific knowledge and training, and the better

allocation of always scarce economic resources. The major obstacles to delegation of responsibility are cultural and administrative, and these obstacles combined with organizational constraints, either do not permit or stimulate delegation. Another constraint in planning this delegation may be the unbalanced distribution of health manpower, with not enough professionals or paraprofessionals available to whom to delegate functions.

Hospital care. Functional analyses of hospitals, as studied in diverse surveys of inpatient populations in urban settings, demonstrate that the distribution of patients among hospitals is determined by factors not necessarily related to their requirements for hospital care. In Birmingham, England, for instance, a survey was made of the needs of all inpatients in hospitals of that city, classifying them among four groups according to their medical, nursing, and social requirements at the time of the survey. The four categories were patients needing (*a*) the full resources of a modern hospital, (*b*) limited hospital facilities because of physical illness, (*c*) limited hospital facilities because of mental illness, and (*d*) no hospital facilities and retained chiefly for social reasons (*15*).

Based on the Birmingham study, table 2 depicts the remarkable heterogeneity of patients' needs within the same institution. Of those in chronic hospitals, one-third required the full resources of a modern acute hospital and one-sixth were mentally disturbed. Of patients in mental hospitals, one-eighth needed full services and another eighth, none at all.

A more limited study in Baltimore, Md., substantiates that 40 percent of the inpatients in that city were misplaced, their hospitalization being the result of factors other than their care requirements (*16*). A similar study of inpatients in the internal medicine wards in hospitals in Göteborg, Sweden, also found that the percentage of misplaced patients in that city was as high as 20 percent (*17*). The results of these studies indicate that a considerable proportion of inpatients in urban institutions might be hospitalized in the wrong place, at the wrong time, and for the wrong reasons.

Several reasons may explain this misplacement. First, hospitals have traditionally provided the premises and nursing services the physician needs for his work (*18*). Indeed, the hospital-based physician or the physician with hospital privileges controls the input to the hospital and thus shapes the composition of the inpatient population (*16*). The physician's perception of need, however, does not always correlate with the needs of the patient or the community.

A second reason frequently given is lack of coordination among hospitals, between them and other medical services outside the hospital and between the hospital and social services—all of them usually run by different administrations. In the three surveys mentioned before, for instance, the authors found that a considerable number of inpatients could be better cared for with domiciliary care or home services if they were coordinated and provided by the same administration that ran the hospital (*15–17*). In those three instances, the home care services are provided by separate administrations; by the public health department in Birmingham and by the welfare departments in Göteborg and Baltimore. This separation of hospital services from ambulatory services where they operate under different administrations poses a barrier to coordination and better use of the hospital services.

The situation becomes further complicated when the hospital sector itself is run by different administrations, as in the United States and in most Latin American countries. Under these conditions, the hospitals' difficulty in coordinating among themselves and with other sectors of the health services system is well known to the students of hospital planning in these countries.

Actually, the need for coordination and better

Table 2. Type of hospital facilities needed by all hospitalized Birmingham, England, patients

Type of care needed	General and special hospital		Hospital for the chronic sick		Mental hospital		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Full care	2,841	96.8	455	34.0	459	12.9	3,755	48.0
Limited, without mental supervision	48	1.6	585	43.7	59	1.7	692	8.8
Limited, with mental supervision	16	.5	218	16.3	2,596	73.0	2,830	36.1
None	31	1.1	80	6.0	441	12.4	552	7.1
Total	2,936	100.0	1,338	100.0	3,555	100.0	7,829	100.0

SOURCE: Adapted from reference 15.

use of resources within the health services system is one of the strongest arguments in the Department of Health and Social Security's Green Paper (*19*) in England for reorganizing the National Health Service's three different administrations—the general practice service, the hospital service, and the public health sector—into a single administration at the community level, under the area health authorities. Paradoxically, however, the proposal recommends that the social-medical services currently provided by the public health service be run by the local authorities, outside the jurisdiction of the area health authorities.

Public health sector. The functions of the public health sector are the most difficult to analyze because this sector lacks a clearly defined basis for work (*18*). Its faltering morale and sense of direction are in part symptomatic of changes which have affected all countries with highly developed medical services. Traditionally, it was responsible for environmental medicine services and control of infectious disease and later for personal health services for those who society considered were not receiving adequate medical attention, such as the poor or mothers and children who required extra care.

Recently the changing picture of the health problem in the community has evoked a change in the public health sector, increasing its responsibility for secondary prevention and, in a lesser degree, for tertiary prevention, in addition to primary prevention. However, this sector has been involved in the delivery of health services in a minor degree only.

The essence of the health problem, with mental and chronic disease constituting the major part, requires the combined approach of preventive and curative medicine services. The artificial dichotomy between curative (clinical medicine) and preventive (public health) medicine, which determines their being administered by different sectors of the health services system, has not facilitated the cure and care of those health problems. For instance, the stroke patient requires medical care from his practicing physician either in the hospital or in the community, but he simultaneously might benefit from physical and occupational therapy provided by the hospital, by home and ancillary services provided by public health services, and by social services provided by the social or welfare department or both. It would certainly be to the patient's advantage if the barriers separating these curative and preventive services disappeared, and the two services were directly related to each other. Actually, the trend in western industrialized societies is to associate and occasionally attach the preventive to the clinical services. Brotherston stated (*18*):

> As medical technology has become more effective and as specific acute infections come under control, the trend is for this kind of preventive medicine to become more closely associated with clinical medicine. Problems of secondary prevention—i.e., preventing or reducing the disabling effects of disease once incurred—are increasingly important in an era when degenerative diseases are the most serious morbidity problems. Primary prevention is to a great extent a matter of achieving behavioural changes which are most likely to be accomplished through a direct personal relationship such as the general practitioner can have with his patients.

If the preventive services now operated by the public health authorities were delegated to the clinical medical services, the patient would receive more complete care. However, this change leads to the question of the proper functions and roles of the public health services.

The situation is further entangled when even the preventive services within the public health sector are grouped on categorical lines that represent a partial and sectorial approach to the patient and his health problem. Health departments, schools of public health, as well as national and international health agencies, usually are divided into categorical groups that are more likely to follow historical needs, long since altered, than the functional distribution of responsibilities for the care of the public's health.

The Future of Health Services

Up to this point, the current work and functions of the three sectors comprising the health services system are described and briefly analyzed, constituting the first step in indicative planning. The second step, described next, defines the functions desired for these sectors and details the responsibilities of each. In addition, in the following section, various models of delivery of personal health services that have been proposed and devised at different times and locales are described.

In this redefinition of responsibilities within the personal health services, a distinction is made between primary, secondary, and tertiary care medical services.

Primary care. Primary care services are the general services offered to the population at the point of entry into the health services system. Of all personnel involved at this level, the physician

is the one who controls the clinical decisions, and the care rendered is general in that the patient brings all health problems to this physician first (*20*).

> The expectation is that this physician will provide comprehensive care, concerning himself both with the continuing personal needs of the patient in the context of family, home, work and community, and with the disease process. Care is primary when the patient regularly goes to his general physician for initial assessment and advice when ill, followed either by management of the illness or referral to some other physician.

Different types of physicians are presently providing this care (*20*). Most, however, are currently working under conditions that Brotherston has described as cottage industry (*21*). Unassisted by other medical and paramedical personnel, the solo practice is not only obsolete, but wasteful and perhaps dangerous.

The two main factors influencing the design of the primary medical care practice have been first, the transition from concern for the individual patient who seeks care to concern for all patients within the community for whom the physician is responsible and second, the responsibility of the primary care physician for curative as well as primary, secondary, and tertiary preventive services within that community. These two characteristics of modern primary care have resulted in the physician's participation on a team and the division of responsibilities among various medical specialists.

The health team. The composition of the team will vary, depending on the nature of the health problem of the community and the cultural, economic, and political factors surrounding the type of organization in which it is located. Brotherston, for instance, suggests a two-line team. The first line includes district nurses, health visitors, midwives, and home help or domiciliary services, and the second line, social workers, physiotherapists, disablement and resettlement officers, and others (*18*). Similar schemes have been developed in other countries; some incorporate sanitarian and environmental services as part of the team (*22*). The size and complexity of this team necessitates the physician's being in a position of leadership and alternating his clinical with his administrative activities.

Also, increasing complexities and demands at the primary care level have led to a division of responsibility by specialty among physicians working in the same setting. Indeed, if the primary care physician must be competent in prevention, recognition, and treatment of disease, it follows that he must narrow his field of concentration. This specialization requires a division of labor and a coordination of work within the primary care services necessitating the change from solo to partnership practice. However, the number of generalists suggested per each partnership varies. McKeown, for instance, recommends an obstetrician, pediatrician, adult physician, and geriatrician, each providing preventive and curative services and home and hospital care to different sex and age groups (*15*). The advantages to be gained through this grouping of generalists are that the patient knows, depending on his sex and age, which specialist to see and that the physician is assured that the medical and related social problems assigned to him are as homogeneous as possible. Needless to say, the composition of the group practice and health team cannot be prescribed uniformly for different environments and settings.

Others, such as Titmuss (*23*), prefer to retain the family physician who cares for all family members throughout their lives. It appears, however, that the wide variation of problems in that social unit would place inestimable demands on the physician and the different types of care required might be too broad for one generalist to handle, although it might have been possible at some earlier time. Indeed, it is expected that it will become increasingly more difficult for a single physician to maintain competence in the care of all age groups.

Another factor which leads to questions about the future feasibility of the family practitioner in some western societies is the change in the nuclear family in these environments. Family members in these societies increasingly have greater social, occupational, and even emotional commitments outside than inside this nuclear unit. A symptom of this might be the growing use in the United States of different physicians for each member of the same family (*24*).

Secondary care. Secondary care services are those services provided following a referral to a health professional or agency. Also labeled consultant-specialist care, they include most of the services provided in a community hospital. However, in some countries, the division between primary and secondary care is not always clear. For example, in the United States the patient may go directly to the consultant-specialist, effectively bypassing the primary care generalist. This often implies that there is no physician responsible for that initial care at the primary level or first entry

into the health services system. This unfavorable arrangement has led to episodic and uncoordinated care and also, from the consultant-specialist's point of view, has the disadvantage of requiring him to work as a generalist under the title of consultant-specialist. It is who White refers to as the "consultoid" (*9*).

Tertiary care. Tertiary care services include the superspecialties such as plastic surgery or neurosurgery, and these are usually provided at the teaching hospitals or medical institutions which generally act as regional centers of care for these services.

Regionalization of the System

The manner in which these three levels of care should be organized leads to the concept of regionalization, which can be defined as the allocation of services in such a way as to allow for the provision of care to the right patient at the right time, in the right place, and for the right reason. Regionalization implies that maximum consideration will be given to the accessibility of resources to the population to be served. Simultaneously, it will attempt to balance the public's request for the decentralization of resources with the centralization required for their efficient usage. An extensive bibliography on regionalization of health services as well as on the methodology used for the regional allocation of health resources already exists (*25*).

In the regional system, tertiary care services are centralized at a regional center. This centralization of resources should be motivated not only by the laudable desire to prevent duplication of resources but to use them better, as well. The need for more effective utilization is illustrated in a survey of U.S. hospitals which showed that while 777 are equipped to do closed-heart surgery, almost 30 percent had not one such case during the year studied (*26*).

> Of the 548 hospitals that had cases, 87 percent did fewer than one operation per week. Of all hospitals equipped to do open-heart surgery, 77 percent did not average even one operation per week, and 41 percent averaged under one per month. Little of this work was of an emergency nature, and the mortality rate for both procedures is "far higher . . . than in institutions with a full work load."

This survey clearly confirms that for economic reasons, as well as for preventing mortality, the now widely spread specialized tertiary services should be centralized in regional centers.

The second level of regionalization encompasses the secondary care services centralized in the community hospital. But many types of hospitals —tuberculosis, geriatric, acute, maternity, and so forth—still exist as does the subsequent misplacement of patients, a result of outdated laws and customs.

Added obstacles to allocating hospital resources according to patient need are autonomous hospital administrations inherited from the past, which involve local authorities, charitable hospitals, voluntary hospitals, and others. In order to correct this situation, a model for secondary care has been suggested that would centralize hospital services within a balanced community hospital, whose planning would be based on the following guidelines (*15*).

1. All patients needing in-patient services should be cared for at the same site.
2. Patients should be accommodated in multiple buildings whose variety of size, design, staffing, and equipment reflects the variation in patients' needs.
3. Patients should be placed in the facility appropriate to their needs, and not according to age, means, or a distinction between mental and physical illness (the basis of the present distribution of patients between chronic, mental and acute hospitals).
4. Medical and nursing care should be provided by a common staff in order to avoid the stratification of services which is inescapable so long as hospitals are on separate sites.
5. The relationship of the hospital to the community it serves should be both more intimate and more effective than hitherto.

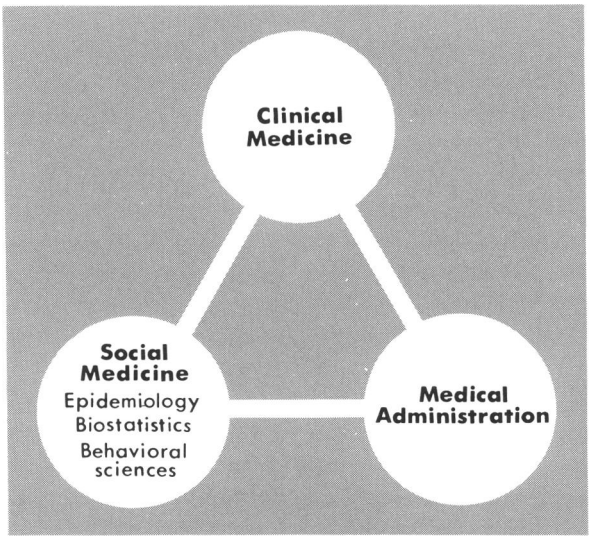
Primary care services at the third level of regionalization are provided primarily by health centers housing group practices, whose nature and exact composition depend on factors such as the socioeconomic structure of the population to be served, the health problems in that specific community, and the type of health services organization already in existence.

Stimuli for Change

In changing the current health services system to a more desirable scheme for the delivery of health services, availability of manpower to operate the system is crucial. With reference to medical manpower, this poses the question of what type of physicians will be required in the new system at each level of care—primary, secondary, and tertiary.

Primary care physicians. The future medical practitioner at the primary care level will be (*23*):

Figure 4. Requirements for a community physician



a first rate clinician, with a good knowledge of preventive medicine and with special knowledge of the problems—both clinical and organizational—associated with family doctoring and with the role of the general practitioner as a doctor of first contact in the community.

As previously mentioned, the main motivation for his work should be a concern for all patients within the population for which he is responsible —both those who seek care as well as those who should receive it, but do not. To do his work effectively, this physician should be trained in two other disciplines in addition to clinical medicine: these are social medicine, to enable him to know the distribution of health and disease in the community (the whole medical and social iceberg), and medical or health services administration, to enable him to administer the resources (health services) at his command and to apprehend, control, or solve the health problems of that community (fig. 4).

[The term "social medicine" should be defined because it has frequently been used as synonomous with epidemiology, preventive medicine, public health, and community medicine, among others. Actually, social medicine could be perceived as that branch of medicine which seeks to study the distribution of health and disease in populations, by employing methods of epidemiology, social and behaviorial sciences and statistics. On the other hand, public health or health services administration could be perceived as the branch of medical practice that seeks to control sickness and promote health in human society by manipulating their cause and effect. As Smith describes, the relationship between the two subjects is therefore clear and resembles the relationship between pharmacology and therapeutics (27).]

Where should this physician be trained? Medical education is clearly deficient in the teaching of social medicine and health services administration, yet along with clinical medicine, they should be the pillars of primary care practice. In Britain, departments of social medicine within the medical schools expose medical students to these subjects. These departments, with strong emphasis on epidemiologic research, are usually independent of the clinical departments. This independence may have had an unfavorable effect upon medical students, offering them the impression that "social and clinical features of disease are separable, an impression that can hardly be avoided if these subjects are divided between different teachers" (*24*).

The situation seems similar in Sweden, where there is one additional, unique characteristic—that most of the faculty in departments of social medicine are psychiatrists. Unlike Britain, the faculty are involved in clinical practice, mainly social-psychiatric practice (drug addiction, alcoholism, and so forth), where they seem to be working primarily as senior social workers. Their involvement with this type of practice further strengthens the students' perception of the separation between the medical and social components of medical practice.

Until recently, medical students in the United States were not afforded much exposure to social medicine and medical administration, which are generally taught in schools of public health at the postgraduate level. Lately, however, following the creation of the first department of family medicine in Edinburgh, Scotland, similar departments have appeared in the United States as well as Britain (*28*). These departments, often called departments of community or family medicine in the United States, are generally teaching demonstrations of ambulatory medical care, exposing medical students to social medicine and medical administration in a practical setting. The teaching has three main aims (*28*):

to serve as ideal models of good personal practice outside the hospital wards in which the student can participate. In part they are to confront the student with the personal and social aspects of medicine, and to encourage him to analyze and consider them when dealing with patients. In part they are experiments and innovations in medical care.

The results have been mixed, and in terms of prestige, these departments do not often enjoy the

popularity among students as do other departments within the medical school.

One alternative might be for departments of community medicine to place heavy emphasis on research and establish their autonomy. But they should simultaneously stimulate the other clinical departments, as well as practitioners in the community who have positions in the clinical departments, to teach primary medical care or community medicine as a natural extension of the clinical care provided in those departments. In this regard, an alternative that has been suggested is that each clinical department (that is, departments of internal medicine, surgery, obstetrics and gynecology, psychiatry, and others) establish a separate division of community medicine with its own staff and area of work through which the clinical department's commitment to the teaching of primary care could take place. The department of community medicine or family practice might then take a leadership role within the medical teaching institutions, acting as a coordinator of the divisions of community medicine of the various clinical departments (*22*).

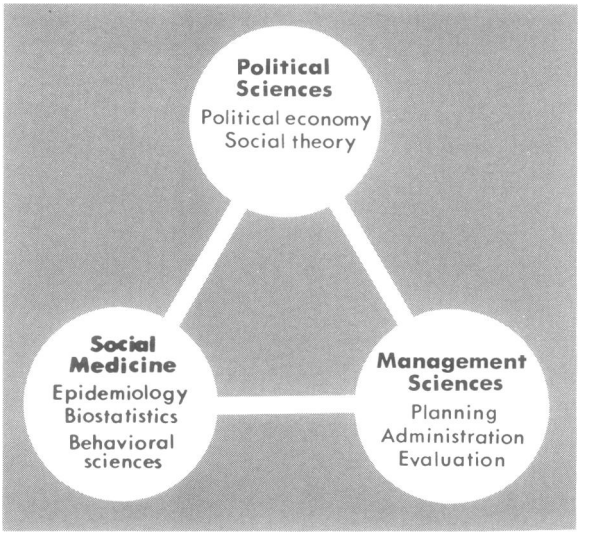
Secondary and tertiary care physicians. The physician working at the secondary and tertiary care levels also has had a very limited exposure to social medicine. To understand the workings of the hospital clinical practice, however, it is necessary to perceive this practice within the overall community problem. As stated before, there is increasing evidence that several health problems, such as hyptertension and schizophrenia, were not clearly understood until their community dimensions were known. Therefore, training in the various disciplines of social medicine should be required for secondary and tertiary care physicians.

Health services administration. Having defined the requirements for the different types of clinical medical manpower needed at each level, it is pertinent to discuss who will organize and direct the health services system within each political and geographic jurisdiction.

This professional, who will head the district, city, regional, or national health services, will be responsible and accountable for the health services system within those units. He will be the leader in the health services field and should have an in-depth knowledge of political sciences, social medicine, and management sciences (fig. 5).

Indeed, to be effective in this role, he will need the disciplines of epidemiology, biostatistics, and behavioral sciences (the components of social

Figure 5. Requirements for a health services administrator



medicine) to acquire the tools he needs to define the size and nature of the health problem within each unit. On the other hand, he will also need administration and management sciences to enable him to organize the health resources of his department or agency in order to solve the health problems. And last, but not the least important, he will need exposure to political science, political economy, and social theory to understand the economic and political environment and learn how to deal with the different groups in society to reach the objectives of the health services system.

Needless to say, this professional cannot be an expert in each of these disciplines, but he must be sufficiently knowledgeable in them so as to avail himself of the assistance of experts and to understand their values and language in order to communicate with them as part of the team.

The title for this professional, as well as the nomenclature describing his work, varies considerably. In Britain, he is called by some the "community physician" and is expected to lead the proposed administration that will combine the now separate hospital, medical, and public health services in the new area health authorities or on other levels of the National Health Service in which the three sectors will be under only one administration (*19*). However, it is advisable, as Sir Geoffrey Vickers recommends, to confine the use of the term "community physician" to the clinician working at the community level, in order to distinguish him from the hospital-based physician (*5*). For this reason, the term "health serv-

ices administrator" is preferred for this professional instead. Another reservation with respect to using the term "community physician" is that this professional need not be a physician because no activities in his work require the specific background of a physician. Actually, the sole medical component required by this professional is social medicine, which increasingly recruits professionals other than physicians. And last, the overall goals of the health services, as defined by society in recent years, are increasingly more concerned with control of disability, dissatisfaction, and discomfort than solely with control of death and disease. In the past, the training of the physician emphasized the latter. Other professionals, such as sociologists, have been trained to deal with the former, and it would thus seem that their background would prepare them equally well for the role of leadership in the health services. Therefore, all of these reasons seem to favor the use of professionals other than physicians as leaders in health services administration.

Training of health services administrators. Who will train these professionals? Until recently, some of the skills and knowledge needed by these new professionals have been provided by different teaching programs of the three main sectors—hospital administration, public health administration, and medical administration. However, these do not provide the full training that health services administrators will require.

Hospital administration is taught in programs traditionally focusing on institutional care, regarding it as independent of the other sectors within the health services system. In addition, hospital administrators have shown little interest in the needs of the denominator, the population to be served. Furthermore, their teaching programs, usually associated with schools of business administration, concentrate on methods to improve institutional efficiency and evince only minor concern for the effectiveness or final outcome of the hospital care itself.

Public health administration is taught in schools of public health within masters of public health programs in the United States and diploma of public health programs in Canada and Britain. Originally aimed at educating the health officer of the public health departments, these programs follow a categorical approach, similar to the approach of the public health sector itself, creating artificial distinctions among categories such as maternal and child care, chronic disease, medical care, and so forth, a practice more the result of past needs and present inertia than a rational distribution of functions within the administration of health services.

Medical administration is usually not well defined or specifically taught. It can be understood as the administration, solely, of the clinical health services. The medical superintendent in Scotland, for instance, or the medical director in the U.S. teaching hospital, are the administrators responsible for and usually accountable to the medical profession, employed to facilitate the physicians' work and to act as bridges between the medical profession and the lay administrators.

None of these programs offers a combined teaching program of those disciplines previously defined as the main pillars for the new professional, the leader of the health services. It would seem that the schools of public health might take the leadership in creating such teaching programs in which the subjects would be taught along functional lines (planning, administration, and evaluation) rather than categorical ones. Initial steps in this direction have already been taken, as evidenced by the creation of the first program in health services administration in Edinburgh, Scotland, which others have recently followed (*29*).

It would seem that, according to the continuous restructuring of concepts of health and medical care, new demands will be made on academic institutions to train this new type of personnel and to evolve new teaching programs. In this restructuring of values and systems, the academic institutions might have a stimulating effect if they precede and motivate, and not merely follow, society's demands.

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