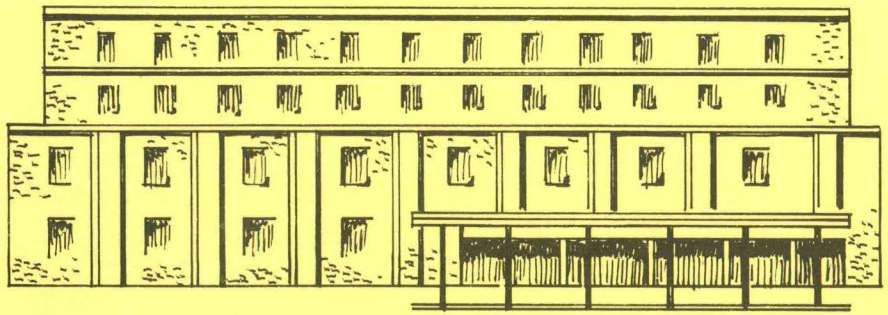
CONCEPTS AND SURVEYS FOR AREA HEALTH CARE PLANNERS

Miscellaneous Report

By Marvin R. Duncan and Robert W. Crown



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PREFACE

This report discusses some basic definitions and distinctions that have been found useful in collecting health-related information at the community and area level for use in considering the planning of health care delivery as part of the community's overall functioning. The information collected under these definitions is useful to the community planner, or local health care planner, who recognizes "health" as one aspect of community life (granted that it is a significant aspect), and realizes that planning for it conditions and is conditioned by planning for other aspects of community life.

That such a report is timely is underlined by the tendency for health care providers as well as governments at all levels to pool information in hopes of developing a sufficient data base to support better planning in health care delivery (in terms of minimizing costs and increasing accessibility). That such a report is needed is underlined when one realizes that the information that is being pooled tends to be of a highly specialized, technical, and medical nature, which in most cases is valuable primarily for the research into disease incidences, hospital administration, public health problems, and so on. But, such information is of limited use for planning within a community setting. Many hidden assumptions about (a) the community priority of health relative to other needs, (b) the willingness and ability of persons to pay for service, (c) the frequent equating of health need with demand for health care, and (d) the degree to which individuals perceive their health and make the financial commitments to solve their problems that are

necessary if medical and technical information are the major bases for health planning. The community planner cannot generally accept such assumptions uncritically.

To be sure, the data pools (such as that being developed by the Iowa Health Information Systems Council) will undoubtedly contain census information showing numbers of persons by age, and even by income class, that reside in one area or another. Further, a planner might reasonably expect that population projections would be available for his area. These data might serve as a basis for inferring parameters of need for planning health services. But the assumption that this apparent need reflects exactly the expected use of health care services if provided at the expected cost levels and in the expected locations is likely to be wrong. The discussion of this report would assist the community planner to modify health care demand projections as well as make independent ones if needed.

In health related matters as in other community interaction, credibility and the apparent lack of self interest are essential if the community is to accept changes recommended by planners. The presence of consumer representation, as well as that of health care professionals, on area and state health planning councils is evidence that the community has not been satisfied with the strictly "health industry" oriented planning and decision making of the past. The intent of this report, therefore, is to assist the nonprofessional to develop information that is independent of and supplemental to the health care professionals' data base and have this information specifically for the area over which the nonprofessional has some jurisdiction.

To this extent, the report contains sample questions and forms that could be used directly or with some modification by local planning groups, either on a census or sample basis. The discussion and the survey instruments included here should assist the local planner to stimulate some needed community participation in the planning process. However, as a cautionary note, the local planner should seek advice of technically trained samplers and survey administrators in advance of using these and any other data-generating instruments. This advice and assistance would ensure the credibility and statistical soundness in the survey results necessary for correct inferences to be drawn.

Objectives

There is need to develop a data base that is useful for planning health care delivery as part of a community's functions. There is need to do this so that impartiality in the data is achieved. This report seeks to:

1) make distinctions and offer definitions that will assist in bringing together socioeconomic data related to health care and the area population, particularly those of need and demand;

2) make the distinctions so that these elements could be used in community survey efforts by local planners and planning agencies (assuming some assistance in sample design and survey administration); and

3) offer sample questions that would generate pertinent information for the planning process.

Acknowledgments

The materials and concepts discussed in the report were developed and refined over the 1973-74 year in a study conducted on behalf of the North Iowa Health Planning Council, which was a recognized agency of the Iowa Office of Comprehensive Health Planning (Office of Planning and Programming, State of Iowa, Des Moines). A census of health care professionals in the area was conducted, and a manual of information prepared.[1] This was followed by a survey of a 10 percent sample of the households in the 10-county area in north central Iowa covered by the Council. Members of the staff of the Center for Agricultural and Rural Development (CARD) led the work and were assisted by the following organizations and agencies:

Iowa State Extension Service, Mason City (Martin T. Poe, Extension Resource Development Specialist)

North Iowa Health Education Program, Mason City (Greg Muffitt, Project Coordinator)

Ad Hoc Committee of the North Iowa Health Planning Council, Mason City (Rev. Robert G. Wendal, Chairman, NIHPC)

In addition, many faculty members of Iowa State University and staff of the Iowa Office of Comprehensive Health Planning gave generous advice and assistance.

The Authors

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[1] Facts for Health Care Planners: A Manual of Information. Center for Agricultural and Rural Development, Iowa State University, Ames, Iowa.

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I. HEALTH, HEALTH CARE, AND HEALTH CARE DELIVERY: WHAT CAN WE REALLY PLAN FOR LOCALLY?

The terms "health," "health care," and "health care delivery" describe different though closely related concepts. In this section we attempt to distinguish between them in a meaningful way. The distinctions are critical because of the implications and scope of concern and problems involved in each concept. The planner should be clear in his own mind what scope of concerns he is going to address, if only to ensure as large a measure of success as possible in the planning effort. Attempts to control or manage the area of concern described by the term "health care" with actions that are more appropriate for influencing "health care delivery" will probably be futile. Recognizing the areas where useful plans can be made at the local level, the planner can conceptualize the system he wishes to influence. He can identify the constraints of the system as well as the existing options for action. The conception of the system is discussed in the following chapter.

Health

"Health" has an intuitive meaning to each person. This intuitive understanding is adequate in most cases since a fairly precise meaning is conveyed from person to person when the word is used (even if a precise definition is difficult to give). The World Health Organization (WHO) views health as the state of complete physical, mental, and social well-being and

not just the absence of disease or infirmity. This conception of "health" gives considerable legitimacy to the claim that the interest of many and diverse persons are really concerned with health policy. The absence of disease and infirmity may well be a necessary, but not sufficient, condition for an individual to be "healthy." Health is more of a feeling or an internal experience that persons either enjoy or lack, individually.

Because health is an internal experience, its status is difficult to quantify for a population even though psychologists and psychiatists can determine it for individuals as a relative matter.[1] Nevertheless, neither the name of the measured characteristic to be used in "adding up" the individual observations nor the method of collection and comparison is evident. Consequently, there is little possibility that a direct and determinate control on "health," with an instrument of control linked directly to an identified outcome, could be established.

It is possible, however, to measure how the feeling of "health" is regarded by individuals <u>in relation to other feelings</u> they have. Questions to do this will be described in a following section (under "health salience"). Therefore, it would be possible to conceive of programs and actions whose object would be to alter the salience (importance or prominence) of health in persons' perceptions. It would also be possible to have a method available that could monitor the success or failure of the efforts. But, whether or not

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[1] To the degree that it can be viewed as one in which there are some or many "unhealthy persons" it might be possible to state that a society is "unhealthy." But the choices of how many persons would make it so would be as arbitrary as the choices of standards against which to measure the health of each individual.

the public or particular agencies would wish to use the various means of advertising and propagandizing that would be effective in changing the salience of health among individuals' experiences is another issue.

Health Care

Implicit in the term "health care" is the idea that there is also a state health or condition in need of care, either extant or in prospect. The act of offering and having accepted assistance or precaution is usually viewed as an exchange situation in which there are suppliers or providers and users or consumers. We can view "health care," then, as something that has the characteristics of consumed quantity.

Just as no individual is forced to consume any specific item that is offered in the more general market place, neither are individuals usually compelled to utilize any specific type of offering in the "health care market." They are not forced to derive feelings of well-being from those services that are used. To be sure, there is strong interdependence between the demand for health care and its supply (an interdependence that is identical to that between suppliers and possible users of any other good or service). However, existence of, or offering of, a supply of health care services is not sufficient to guarantee that persons, who planners think will be beneficiaries, will actually consume such services. Further, the absence of health care services does not necessarily mean that persons who planners feel are suffering neglect are not experiencing health.

For the past two decades there has been a dramatic broadening of the definition of "health care" via social service to include rehabilitation of the victims of alcoholism, developmental disability, and other conditions, apart from the apparent maladies typically treated by physicians. This broadening has brought health care to the point where it more closely reflects the range of possible demands that might arise when the WHO concept of health is accepted. Therefore, claims that the possibilities for a positive health experience have increased are clearly defensible.

Health care can also be thought of as our ability to treat or forestall disruptions in the individual's experience of good health. Yet in this general description there are two components that lend themselves to more precise meaning. First, there is the actual state of knowledge about conditions that scientists believe influence the health experience of individuals in negative ways. Some of these conditions are presumed to impact on the individual's good health experience rapidly and with high probabilities once adverse conditions are encountered. Others impact on the experience slowly and with lower probabilities. Scientists relying on the inductive logic of seldom having met an individual with one or other of these conditions whose individual health experience was not negatively influenced, conclude that there is a connection between the condition and health. Research activities continue so that the characteristics of the conditions and their impacts on the human experience can be better known. Therefore, society has some ability to control this aspect of health care by directing grants and other means of support to the generation of particular kinds of information.

The second aspect of health care is the distribution or delivery of the knowledge that has been generated. To be useful, knowledge must be embodied in some agent so that it can be dispensed. Broadly interpreted, the embodiment is in human resources--physician, nurses, medical researchers, and in physical resources--hospitals, clinics, technical capabilities. The delivery problem itself has two facets: the first being concerned with the best mix of human and nonhuman resources to be used in the delivery process and the second dealing with the rates at which these resources are used, rewarded, and distributed among the population. The delivery problem is examined in the following section.

Health Care Delivery

The delivery of goods and services is part of the overall supply process in health-related matters as well as in the economy as a whole. It is a very significant part, for the existence of a stock or a supply alone is not sufficient to ensure that they will be used most effectively, or at all. It is also evident that any aspect of health care has associated with it a limited range of acceptable delivery alternatives that are "best" from the two competing standpoints of cost efficiency and technical efficiency (i.e., sheer capability to utilize the health care knowledge). There are large trade-offs between these two outside of this narrow range. For example, the delivery of health services through the means of a nursing home to aged persons unable to provide for their own care is one alternative with costs and capabilities different than those of a delivery of similar services via in-home visits by

nurses and other supportive persons. The health service itself could, presumably, be maintained at a comparable level through either means of delivery. However, the relative costs and utilization possibilities would probably vary widely.

The task of quantifying health care delivery is a more straightforward process than the quantification of health or health care knowledge (even if counting numbers of physicians, hospital beds, patient visits, and so on may be a poor indication of the amount of "health" being delivered). Further, recognizing the essential supplier characteristics of health care delivery is useful when considering how the health care sector might be manipulated by public policy. For example, policies that alter prices received by health care providers, costs paid by health care users, and their relationship to each other could certainly be relied on to redirect the character of the health care sector, as could legal requirements. There are policies whose impacts would be felt in the short run as adjustments to the flow of services emanating from existing facilities and persons committed to the sector. There are also policies whose impact would be felt in the longer run as adjustment in the numbers and locations of suppliers with greater fixity, such as the persons and facilities themselves. Thus delivery of care is subject to direct and significant control in a way that health itself is not.

"Health Planning" in Local Perspective

With an idea of what is meant by health, health care, and health care delivery in mind, we must ask what areas are relevant for local action and what

areas are best viewed as outside conditions over which little or no control can be exercised at the local level? When the planning process occurs, it means that decisions are being made. Therefore, the character and scope of the planning process (that is, what is subjected to the planning) is limited by the possibility of actually making decisions that can realistically be implemented. There must be an appropriate application of the planning process to areas that reasonably can be dealt with at the level involved.

It would be inappropriate for an area health planning unit to attempt to deal with matters that could only be reasonably influenced by decisions at a state or federal level. For example, an area planning unit could not be reasonably expected to become involved with the funding research aimed at broadening the understanding of disease or infirmity. The amount of funding and time required for even reasonable expectations of success are beyond the means or time horizons of local decision makers. Thus the component of health care that is involved with the generation of knowledge must be treated by area planners more as a limitation on areawide action than as a vehicle for self-directed change. However, state or federal authorities can legitimately make decisions in the health care sector where areawide planners cannot. Attempts to stimulate cancer research, as an example, show that a health care policy has been set to acquire the knowledge viewed necessary to have.

Area health planners might not reasonably act to change the value that the individual places on his "health," since the value of the health feeling to individuals is determined by cultural and social factors surrounding the individual. Resources available to the areawide planner might be better

spent than trying to change one small piece of a regional or even national character. Therefore, areawide health planners might well view the salience of the health experience to the individuals within their jurisdiction as a constraint imposed on planning.

However, the areawide health planning unit can reasonably be expected to influence the development of health care delivery at the point at which health care actually meets the individual in need of it--at the community and local level. This area of planning demands both (a) the most sensitivity to individual aspirations and priorities among needs and wants, and (b) the most knowledge of the actual mechanics of the operations of various providers as they work day to day. It is at the community level that planning and implementation are most closely tied together.

Therefore, the areawide health planner is obliged to accept such elements as salience of the health experience found in the population under his jurisdiction, the state of health care knowledge and technology that is to be delivered, and some embodiments of health care knowledge (such as state or legislatively determined embodiments of knowledge in physicians rather than paramedics or free-operating, independently licensed nurses). There is, however, considerable scope for inventiveness in planning within these bounds, if done with consideration for the vital interests in the outcome.

The local health care delivery plan requires the specification of a system of exchanges that occur between users and providers so that appropriate options can be considered in the plan. The next section discusses this system and shows areas where local measurement could occur. This discussion leads to the concluding sections of the report which suggest questions that could be appropriate in surveying the system.

II. HEALTH CARE DELIVERY AS A SYSTEM

In the preceding section the distinction was drawn between the concepts of health, health care, and health care delivery; concepts that are frequently interchanged and used in ways that reduce the ability of planners to communicate and analyze their relevant problems. In this section we show how they relate to each other in a systematic and integrated fashion. The attempt is to specify a "health care delivery" system, describing what might be viewed as the links holding the system together, the elements that are contained at various points in it, and the areas in which measurements might be made so that inferences can be drawn concerning the status and future of the system.

The System as a Circular Flow: Static Case

We distinguish between the individuals who are participants in the health care delivery system and the things that are exchanged between them. Crudely, a health care provider offers a service and receives a payment for it. Consumers of health care offer payments and in return receive the services of the providers. The service offered and received is health care, and the characteristics of the link between provider and consumer is the delivery system.

Through usage, health care providers have been segregated into personal providers and environmental providers. Personal providers are most easily identified because they are the health care professionals that the layman readily identifies with his personal health (physicians, dentists, and so on).

Environmental health care providers are those dealing with public health at the community or state level. A third class of health care providers is identifiable, particularly if the most general concept of health is accepted--that is, the concept that includes social well-being of individuals as well as their individual levels of disease or infirmity. We separate these three classes of providers and show them in the right-hand blocks in Figure 1. The left-hand block in the figure depicts the consumers of all forms of health care. The concept of "health" itself is not shown in the figure, since it is the internal feeling experienced by the households and consumers as a result of the flows of service they receive.

The flow of service (personal health care) between personal providers and users is viewed as being curative, preventive, and rehabilitative (lowest flow in Figure 1). Its essential character is that it is delivered directly to the user in face-to-face situations through personal contact (even if some embodiments of the service delivery seem "impersonal" such as queues for innoculations or public clinics). The flow in the diagram has two characteristics; the form of the "pipeline" between providers and users which describes the characteristics of the delivery system, and what actually flows through it (that is, the care).

The uppermost link between providers and consumers describes the flow of public or environmental protection and prevention that is delivered through programs in work places, dwelling places, and in the community generally.

A significant number of personal health care services are generated by the class of providers usually thought of as providing social services (for

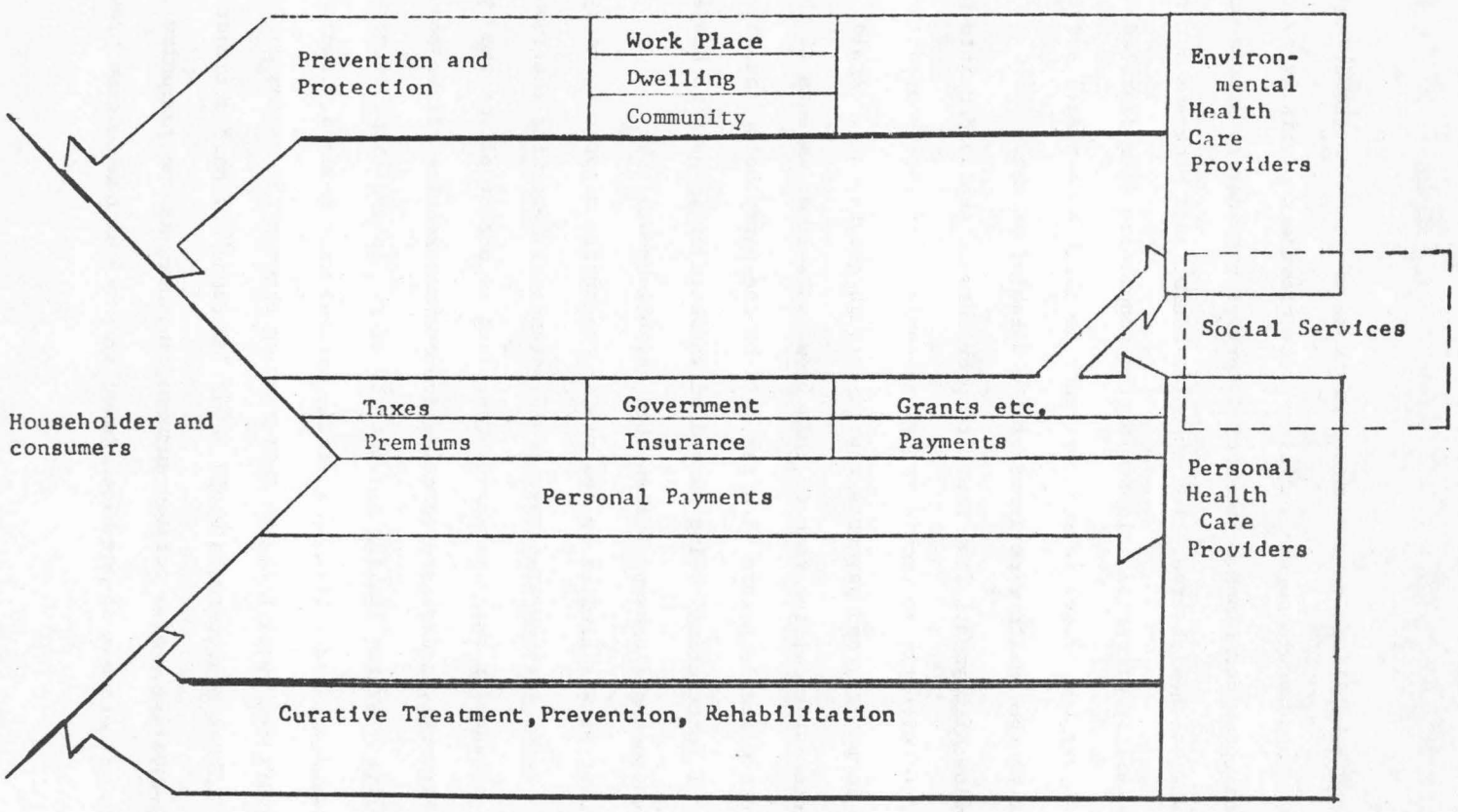

Figure 1. Circular flow of services and payments in the health care delivery system.

example, the rehabilitative activities of those who service the developmentally disabled). These would be the social service providers partially overlapping the personal provider block. The social service provider is also a provider of environmental health care. For example, educational programs can raise the acceptability of certain classes of the population (the disabled, for example, in various places in society, such as their work place) and thus contribute to the health experience of the disabled person.

The flow of payments from users to providers is subdivided into personal payments made directly to providers by households, payments routed through insurance companies, and payments routed through governments. Again, there are characteristics of the form of this flow as well as amounts of the payments. (An inspection fee is a form of a tax paid by the party being inspected with an amount of "protection" being passed on in whole or in part to householders that patronize the licensed or inspected establishment).

If interest was limited to describing the static nature of the system at a point in time, a study or survey could attempt to determine the quantitative dimension of each of the populations described in one or all of the "blocks" shown in Figure 1, and/or the quantitative characteristics of the structures of the delivery system linking provider to user. In addition, if more sophisticated surveys (still of a static nature) were desired, some aspects of the nature and quality of the care flowing through the system could be measured. These measurements would be of "outcomes" of past actions.

Most usually, health related surveys conducted at the community level look at the dimensions of one block (usually personal health care providers

or a smaller subgroup of these like physicians or a hospital) some of the dimensions of the flow from personal providers to consumers (such as numbers and locations of physicians' offices, hospital locations and bed-size, and so on). But it should be clear from Figure 1 that even in a static case, information on one block or some of the characteristics of the link from providers to users would provide a very limited view of the health situation.

And, if interest is in the planning question, where development and change is sought (making the initial static view, a base reference point) knowledge of a dynamic nature is needed. We now consider several of the factors that a planner would wish to treat quantitatively as he plans for the evolution of the system to different states.

The System as a Circular Flow: Dynamic Case

The state that can be observed at any point in time is subject to change either because of "natural" forces (which are really the result of all the private decisions by all the relevant participants in the system), or because of premediated actions being taken to influence events that direct the participants to act in a different manner. Planning tries to at least modify the "natural" forces, since it assumes that there are outcomes or states that are less desirable than others and should be avoided.

What drives the evolution of the health care delivery system that we have just described in a static way? It should be realized that because the links between provider and consumer form a circular flow, there is as much "driving" done by consumer as provider. Consumers generally can refuse to accept the offered service if they choose (either because of its cost, their

perceived need for it, its geographic location relative to their own, and so on). There is, then, a set of factors that are influencing demand (in the usual economic sense of demand as the predisposition to spend) in addition to needs for health care, occasioned by the presence of infirmity or awareness of the need for prevention. There are, in addition, more apparent factors influencing the supply or offering of health care services of one kind or another. The system moves or evolves as one set of participants makes changes that they see as being in their best interests and the other set of participants reacts in a way that makes most sense to them, given the new circumstances they face.

To illustrate, consider the case in which a physician's office in a rural town closes. The closing represents a change in the supply situation that was seen by the physician involved as being in his best interest. The factor leading to the adjustment of supply could have to do with the reduced patronage because of population shifts and the resultant change in income that would be expected relative to that available if the office were located in another place. But, however valid the reason, there would still be persons in the original office area that would now face greater distances between them and the physician. This would represent a reduction in access and a greater personal cost of acquiring services. User reaction could range anywhere between paying the added costs with no reduction in use to eliminating visits altogether as a result of the access problem, despite need that might exist.

Regardless of the reaction, the planner would wish to have some knowledge of the expected reactions of the users and the providers if changing conditions

were to occur, particularly if the change that could occur was one that was purposefully instigated (such as the building of a new hospital or the subsidization of costs to the user).

Knowledge of the characteristics of the population of an area under the planner's influence, dealing with such things as age composition, family composition, incomes, past medical history, sex, ethnicity, social status, and so on can be used to predict the population's likely reaction to proposed changes in the health system on the supply side. A considerable body of literature has been digested into a booklet of information about how persons of different personal atributes are predisposed to use health care services and the extent to which they respond if they are more able to use the services.[1] Some of these are described in the next section under "influences."

The supply of services is the product of two decisions, each motivated by economic, cultural, legal, and social factors similar to those which motivate the users of services. Though the discussion is in terms of an individual provider--doctor, dentist--to aid in understanding the decision process described; it is equally valid--though substantially more complex--when expanded to groups of providers or to hospitals and nursing homes. First, a person decides to become a provider of health care. Then, once committed,

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[1] See a survey of literature and findings with respect to "enabling" and "predisposition" variables in Lu Ann Aday and Robert Eichhorn, "The Utilization of Health Services: Indices and Correlates." DHEW Publications (HSM) 73-3003. Washington, D.C. December 1972.

he decides to offer varying amounts of service.[1] Similar factors motivate both choices, but they would operate in different intensities in the two cases. Somewhat less is known about the decisions of providers to offer services. But it would be reasonable to assume (in the absence of evidence to the contrary) that they behaved as if they were rational and reasonable businessmen; being concerned for maintaining the long term viability of their practices with a minimum need for relocation. As a result, it might be expected that the longer a provider has been in an area, the less likely that he would relocate. Several simensions of the provider that are seen as useful for planning purposes are described in the next section.

III. TOWARD A COMPREHENSIVE SURVEY OF THE HEALTH CARE DELIVERY SYSTEM

The area health survey is a means of assessing the status of the area health care delivery system. The status of the system includes not only the numbers and distributions of individual providers, users, and facilities but also the predipositions of the participants (and potential participants) to behave in one way or another. Knowing how a group is likely to act in a variety of health-related situations is as important as knowing how many there are who might act.

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[1] An economist would classify the first set of factors as those influencing the stock of resources available to perform services and would view this as a medium or longer-run health care supply consideration. The second set of factors would be seen as influencing the flow of service and would be treated as a short-run problem. In the case of physicians, for example, the longer-run or stock-adjustment problem would be the manpower problem of having enough physicians in the places where they were apparently needed, given that each could efficiently handle a specified work load. The shorter-run problem would be to induce the physician to increase his work load without changes in technique or to intensify the use of a service-augmenting technique against a fixed stock of other resources, including hours of physician time.

But survey results only describe current or past situations. They do not, in and of themselves, predict the future. Further, data is only a basis on which plannters infer the possible future courses of action and the resulting distribution of benefits and costs of their actions. Because of this, the best data is that which provides the best basis for inference.

In the following sections, attention is focused on the description of basic information that can and should be collected if area health planners are to make reasonable inferences from the past to the future. The items described are suggested by the discussion of the nature of the circular flow associated with the health care delivery system given in the preceding section. Some of the items described should be viewed as outcomes of the system (as if the system were static), while others should be viewed as influencers of change on the system (as in the dynamic case). The information collected thus can be organized to infer causal relationships so that inferences for the future can be based on evidence of the past.

The Individual's Health Experience

The outcome of many forces in the individual's health experience is his utilization of health care providers. And since area health care planners primarily influence the options for individual utilization of currently embodied health care (that is, the delivery of health care), it is sufficient for them to collect information describing those aspects of the individual's life that affect utilization of health care services.

Revealed need and facility use: An outcome of individual health experience

Two methods for collecting information on health care needs and demands have been devised. The first, termed the "conditions approach," attempts to collect knowledge of the symptoms or negative health conditions found in a population, then draws inferences of how the population is likely to tie these symptoms to a variety of health care providers. The second, known as the "facilities-used approach," attempts to collect knowledge on which health care providers were actually contacted, for what reasons, and under what circumstances; it infers expected utilization directly for the population. Both methods could be performed with samples or whole populations. The conditions approach assumes that an individual knows what his symptoms are and that he will make the correct choice of health care provider in terms of type, location, cost, etc. The facilities-used approach assumes simply that the individual did what he did for reasons that seemed reasonable.

The facilities used approach has been shown to reduce the cost of collecting information. Further, the accuracy of individual recall and the time required to draw the inferences is approximately equal under both approaches.[1] Thus, the facilities-used approach is more satisfactory from the area planning standpoint. First, by assuming only that the individual did what he did for his own reasons, planners would be accepting the rationality of the population as given when they draw inferences. Thus it would not be a necessary condition for planning that

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[1]The two approaches were tested on a similar population in New York City. It was found that the facilities approach was cheaper in terms of time and expense with no loss in accuracy of recall of past circumstances. See Regina Lowenstein, Two Approaches to Health Interview Surveys, School of Public Health and Administrative Medicine, Columbia University, New York, 1969.

an individual always seeks the closest provider in case of need (which indeed, they do not). The planner would be allowing for the individual selection of symptoms that are referred to health care providers (be they serious or frivolous) and seek to explain why this is more suggestive in terms of designing programs with public education components, or with financial aid components, as possible substitutes for expanded facilities when facilities may be currently under-utilized.

The conditions approach to health surveying is valuable from the viewpoint of health science and technology, as in the study of epidemiology. For example, in cancer research the use of conditions as an outcome and a variety of support data as causal variables provides useful information for developing and testing hypotheses about the impacts of various environmental conditions on cancer development. This is most useful for the development of methods of cancer prevention and possible treatment and as such is a vital contribution to health care. Further, the incidence of many conditions in the general population is so low that a community or multi-county planning area does not encompass a large enough sample population for the incidence of such conditions to be measured with confidence. But area health planners cannot make use of the same

conditions data because it does not provide a basis for inferring anything about the actual delivery of health care once it is embodied in some form.[1]

With the facilities-used approach, certain information is useful in describing the experience: where the individual went for the service, what provider the person saw for the service, for what condition the individual sought the service, the approximate costs of that service to the individual (both gross and net of insurance payments), the frequency of the visits, and whether or not other facilities or providers were involved in the service. (See Part IV, section 1, question 3, for a suggested means of collecting this data systematically.)

Various pieces of support data (described below as "influences on use") would be collected simultaneously and from them the planner would be able to draw inferences on changes in expected provider use from given changes in influencing conditions.

Unmet need: Another outcome of the individual health experience

From the planning standpoint, if goals of accessibility and cost are the motivating factors of concern, it is as important to learn why some

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[1] A serious problem arises as a result of the failure to recognize the limits to the usefulness of "health data" of various types. In the past, data of a conditions nature has been collected in great quantities, both by national agencies, such as the National Health Survey Unit, and by state and local organizations, such as hospital associations, colleges of medicine, departments of health, and so on. But the information collected related to matters of health science and technology, because these were the matters under concern. Thus, considerable fear and concern over "duplication" arise when consumer and individual-oriented surveys are conducted because of the failure to admit the difference in character of information collected for the planning process. This fear, however, is not justified once it is recognized that the data necessary for planning health care delivery are of significantly different character than the data base required for health science.

persons who might have used the services of health care providers failed to do so as it is to know where and what services others did use. Possibly the individual with a felt need does not have the resources to avail himself of services that are available or the individual's resources are not sufficient to meet the conditions of distance and cost that the current configuration of service locations require. Alternatively the individual, perhaps as a result of cultural conditioning, may not feel sufficiently motivated to seek services even though he experienced a symptom that would motivate another person to seek services. In either case, the information suggests a lack of contact between providers and potential users who did not seek service that can serve as a basis for developing alternative means of delivery. (See Part IV, section 1, question 4, for suggested means of collecting data.)

Health salience: An influence on use of services

Before an individual will seek services for experiences related to his health, he first has to know that there is some reason why he should seek services, and secondly he has to feel concern about the consequences of not seeking service. Even with completely free health care services and high levels of accessibility, a person who is ignorant, undisturbed, or culturally oriented away from scientific health care, will not seek assistance. Salience (individual perception of health status) is subject to change over time as a person ages; it is a feeling in life held by the individual relative to other feelings; and it is a feeling that will vary with individuals in a population as the negative health experiences of individuals vary (a negative health experience is similar to gaining specific education about ill health).

The salience of health is difficult but not impossible to quantify even though it is an internal feeling to the individual. Nonetheless, an estimate of the degree of importance of health can be determined and expressed for individuals in various subsets of the population where these subsets are grouped so as to eliminate much of the variation in health-related knowledge, past health experience, and socio-economic background. (See Part IV, section 1, questions 1 and 2, for a suggested means of determining health salience.) With this knowledge, the health planner could determine for a population whether or not health-related programs would be used if implemented and which subsets of the population would be the more likely users. (Presumably those with the higher salience of health would be more motivated, after the influences of socio-economic class and other contributing factors were accounted for.) Also, and of considerable importance when health programs have to compete for scarce community resources, a high salience of health would show that resources allocated to health-related programs would have a relatively greater contribution to the perceived well-being of the population as a whole. In the jargon of the economist, high salience of health would infer health is a heavily weighted variable in the individual consumer's utility function. Thus, improving and increasing health related programs would add substantially to individual utility (well-being). If consumers generally weighted health heavily in their utility functions, an improvment in or addition to health related programs would enhance the well-being of the community.

Socioeconomic status: A second influence on use of services

Ability to pay for services is one of the more obvious economic influences that conditions the individual's use of health care services. This ability does not always relate directly to income, since prior commitments of income to fixed and predictable uses can limit the ability to pay for less predictable uses. Thus, budget patterns also are influences on health use. Family size and composition can also be viewed as influences on service use, with the relatively young and the relatively old showing different rates of service use than those of median ages. Likewise, variation in occupation can account, over time, for differences in individual use of health services. A variety of other factors, such as education, sex distribution of the population between ages 15 and 45, racial composition, and marital status influence both the type of health service demanded and the likelihood the health service will be demanded. The planner can more accurately predict service demand levels for the health services in question than if he were relying only on aggregate population data. (See Part IV, section 1, question 1, for suggested means of collecting these data systematically.)

Health service experience: A third influence on use of services

The individual's previous experiences with the health care delivery system will result in more services or fewer services demanded than might otherwise be true when that person perceives his health experience is worsening. An individual who has had a long history of facility use will be more likely to use health and facilities service again. Thus, for a

planner some indication of these qualities in the population within his jurisdiction would help condition other predictions of need and expected utilization. The planner as well as the health care provider has a stake in decreasing the barriers to use of health care that may arise out of inadequate education, economic constraints, or cultural biases against scientific health care. The consequence of a reduction of such barriers is conceptually an increase in the level of aggregate utility (well-being) enjoyed by the target population. (See Part IV, section 1, questions 2 and 3, for suggested means of collecting this information systematically.)

The Delivery of Health Care: Personal Care Providers

For personal health care providers there are observable outcomes of the variety of factors that influence past decisions, and the possibility that future outcomes of decisions made at the present time can be predicted. But there are limits to which some decisions made by providers can be influenced or changed by planners, and these are considered in the discussion of influences in the following sections.

Census of providers: An outcome of their past decisions

Before attempting to plan for change, the planner needs to determine the numbers, locations, types, and service offerings of the population of health care providers as they are at that initial point in time. Thus, as

part of the comprehensive survey of the health system, a census of all providers should be considered. It is also evident that some of the information that is desirable cannot be gleaned from published sources, although data on numbers, locations, types, and service offerings can to some degree be collected from secondary data such as the annual Guide Issue of the Journal of the American Hospital Associations. Thus, a survey to collect the data on patient origins, referrals, and utilization could well include census questions, if only to serve as a means of organizing the other information sought.

Operation characteristics of providers: Another outcome of past decisions

If health care delivered is viewed as the "output" of the health care sector, then the operational characteristics of providers describes the configuration of "inputs" and the costs of these inputs that combine to make the service possible. There are a variety of influences in the community that determine costs of some of these inputs, such as the cost of labor, support staff costs, and a host of other costs usually associated with business expense. The net cost of combining these components depends on the technology available and to some degree the rate of utilization of the service involved.

The planner would wish to know how conditions internal to the provider's operation and external to the provider (that is, those determined in the community) were netting out to give cost per unit of use so that less costly configurations of inputs for comparable outputs could be designed. However, there is a considerable problem of defining what is

meant by the "service" and the "services used" (see "Utilization" below). In Part IV, section 2, there are suggested items that might be used in this regard.

Utilization of services: A third outcome of past decisions

The rates at which services that are currently available are used indicate how the relevant portion of the population involved values them. Some of the reasons for differentiated utilization rates involve: (1) the availability of less costly services that are seen as substitutes for those not used, (2) inability to pay for the services, even if no substitute exists, (3) a population that is too small to use the service at a higher rate regardless of cost, (4) inaccessibility because of distance-travel considerations, and (5) lack of human or physical resources to make the service functional.

Information is needed, therefore, on utilization of services when services are described as narrowly and precisely as possible (within the bounds of workability and to the extent that perceived homogeneity is preserved). The rates measured (such as occupancy of beds, visits per professional man-day) would logically vary with the type of service provider involved. Supplemental information on utilization, such as the degree of repetitive use or the average length of stay, infer as much about the operational characteristics of providers as the utilization rates and help form a link between the two considerations. (See Part IV, section 2, question 5, for suggested definitions and means of collecting the information systematically.)

User origin and referral patterns: A fourth outcome of past decisions

The services offered by some providers of health care are given in harmony with those of others. To plan with full definitions of the services that are used, therefore, requires that knowledge of referral patterns between providers be determined. This is particularly true for such provider classes as physicians and hospitals.

Personal characteristics of providers: An influence on decisions

Any health care provider, like providers of other services to the public, has made a career choice at one time in his life, which has not changed if he is a provider today. Further, once committed to being a provider of health care, the individual makes a second round of choices dealing with his location, volume of services to be offered, and technology employed in the delivery of service. Because the provider has a fixed amount of time in each day and requires leisure as part of the day, the time available to work is limited. Thus, with his expectations of income and other qualities in his life, he selects the operating technologies that will yield the life he wishes. When the technologies and life-options open to him are consistent with a given size and financial situation of catchment population, there should be no incentive for him to change his operation.

This behavioral scenario of health care providers is substantiated in personal communications with administrators at the State University of Iowa College of Medicine.[1] Data collected by the authors in the North

[1]Personnel communications with University of Iowa College of Medicine administrator.

Iowa Health Planning area indicates the relative mobility of physicians in the early years (5-10 years) of practice and the relative immobility of physicians thereafter.[1]

In the final analysis, the fact that providers of health care are individuals with feelings, ambitions, limited time in their day for work and leisure, and responsibilities permits the planner to understand the legitimate tools in his attempts to organize change and to comprehend the likely impact of actions.

However, when change occurs in one or other of the elements that originally balanced each other off, the provider will be motivated to change within the limits warranted. For example, suppose that new technology becomes available to a physician that makes it possible for him to increase his patient load within the limits he sets on his time. His perception of his catchment population increases, and there is incentive for him to move the location of his practice towards the center of the enlarged population. The extent of changes in location would be even more dramatic if, at the same time technology was enabling the physician to have a larger catchment population, population per square mile was also decreasing. Thus, in the planning process, a reasonable assumption about the motives of providers is that they behave as entrepreneurs and make rational economic decisions against the backdrop of professional ethics modified by no less feeling of social concern than

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[1] Crown, Robert; and Duncan, Marvin. "Fact for Health Care Planners." Ames: Center for Agricultural and Rural Development, Iowa State University, 1973.

the average man but with the expectations, tastes, and preferences of others of similar formal training and degree of monopoly power in the market place.

Given these assumptions the planner could expect that incentives in terms of economic reward and quality of the work place would be important to a young physician if he were deciding whether or not to begin a solo practice in a small town. Further, given the relative immobility of established physicians (they are reluctant to leave an established practice unless recruiting is being done for a large group practice or clinic position), efforts aimed at the young physician will be more successful than those aimed at the mature physician. The overriding probability would be that, as most young professionals, he would attempt to maximize his leisure time, given his income and life expectations, and attempt to maximize the quality of the use of his leisure time. To many persons these goals could be better attained in group practice in more urban settings.

It is difficult to quantify the motives of health care providers just as it is difficult to quantify the motives of other people. Some indication of what set of assumptions to make about motives can be drawn from other variables, however, such as age and years of practice in the same place. (It is as difficult for a health care provider to change location and build up a new practice as it is for another provider of personal services to change location and go to a place where he is not known. The essential loss in "business capital" would be large in either case.) But it would be for descriptive purposes that such inferences would be drawn, not with the intent that area planning could modify the tendencies.

The Delivery of Health Care: Environmental Care Providers

The observable outcomes of past decisions dealing with the provision of environmental health care are less evident to individuals, particularly in local areas, than the outcomes of personal health care delivery decisions. Further, the influences that area planners can exert are limited. For example, one outcome of past decisions dealing with environmental care has been the ability of individuals to feel confident that a meal eaten in a restaurant has been prepared under reasonable conditions of sanitation or that meat sold in the market place has been refrigerated and kept reasonably free of disease. As another example, the outcome of past decisions has been the virtual eradication of smallpox or the near elimination of polio in the United States.

But environmental health, like personal health, is experienced as a flow of continuing service so that the attainment of landmark successes in the past have to be kept from depreciating over time. Thus, a measurement of outcome of past decisions can be made by measuring the ongoing resources committed to and programs of environmental and public health.

Census of current environmental health care providers: An outcome of decisions

A census of environmental health care providers and the programs being conducted would follow along lines similar to the census of personal health care providers. Distribution of time, numbers, and training of persons involved in different capacities, and financial commitment (i.e. annual budget of such programs) would indicate the status of that part of the system.

Decision determinants

Environmental health programs are experienced indirectly by given individuals and are paid for through equally indirect means, such as taxes or the individual participation of many. The weakness of the association between the individual and the program can be readily explained: Given that the individual has arrived at a certain salience of health experience in his life, aspects of health have differing significance to him. Suppose, for example, the individual ranks health experiences (1) by the expected time it will be before he is personally affected by a negative health outcome, and (2) by the probability that he will be involved at all. Therefore, it is clear that environmental health problems will be ranked very low in the individual's priorities, since the life threat of ignoring the matter is very low. Add to this the indirect means of payment for environmental health programs, with the likelihood that political compromise and negotiation blurs the ranking of individually held priorities, and there is little doubt about the area planner's fairly weak position.[1]

To be sure, when an environmental crisis arises, the salience of health in an individual's life experience increases as does the probability of his being a victim of the situation in a short time horizon. Thus,

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[1]To be sure, state and federal agencies are much stronger than local authorities in environmental health matters. However, a current study in Iowa, sponsored by the Office of Comprehensive Health Planning, is attempting to develop recommendations for the formulations of area and local boards of health. There is (1974) a Task Force on Model District Boards of Health, whose report is available from the Office of Comprehensive Health Planning, OPP, Des Moines, Iowa.

environmental programs can be developed and implemented rapidly, with public and financial support at times. More generally, however, the impetus for environmental health programs is low, so that area planning frequently omits them.

These influences are difficult to measure and are equally well reflected in data on a census of the provider side.

IV. SOME SUGGESTED SURVEY QUESTIONS

Each of the following sections contains suggested types of questions for determining the major magnitude of relevant variables described in Part III. These could be used directly or altered to meet the more specialized need of the planners involved.

With some of the items, a supplemental note is added which would not be part of the question itself but describes the possible tabulations, other means of handling the information, and suggested methods of asking the question.

Survey of Individuals

The following are questions that elicit information described in the preceding chapter regarding the individual's past health experiences, the value he places on them, and the contex to which he experiences them. The assumption is that a family member (i.e., wife) answers questions for the entire family.

Question 1. Family roster

These questions develop information which places the individual in a socioeconomic class. The variables generated are used to group the other responses obtained. Because different age, sex, and socioeconomic groupings of persons generate different intensities of demand for health services and demand for different services, such categorizing is useful

in explaining demand and utilization patterns presently experienced, as well as those that can be postulated for the future. In addition to the roster as given, added questions could be posed that describe the income class of the individual and the sources of his income. The questions can be asked directly and should be accompanied with the reassurance that no personal disclosure will follow.

Table 1.

FAMILY ROSTER

				Last Formal Education Completed						Usual	Now	
	Name	Age	Sex	Grade Sch.	High Sch	Jr. Col.	4-Yr. Col.	Tech. Tr.	Post Grad.	Occupation Or Job*	Employed or Unemployed	How Long?
1.												
2.												

*NOTE: Get occupational name, not an employer

Ask also: "Who is the head of the household?" (place star beside name *)

For each employed person ask: Is this his only job? (insert check mark in employed column if no).

Table 1. Continued

(a) Considering your entire household, what were the sources of your family income last year? (Surveyor check.)

Income Sources	Percent from Source
Salary or wage or other earned income of head of household	
Salary, wage or other earned income of other major contributor (spouse, respondent if not head, etc.)	
Salary, wage or other earned income from other members of household	
Social security and pensions	
Welfare	
Gifts or support (on a regular basis)	
Other (Specify)_____	

(b) What would you estimate as your family's total income from all sources last year? _____

Question 2. Personal health history of family members

These questions are asked by the interviewers about each family member. Parts (a) and (b) of this table ask for a personal, introspective evaluation of the person's past and present health status. Parts (c) and (d) determine the historic relevance of the individual's overall response to the questions.

Parts (a) and (b) are used to classify answers and opinions along such lines as "Those with deteriorating health in their own eyes," "Those with better health than others in their own eyes," and so on.

Parts (c) and (d) are used to classify other answers along such lines as "Those with serious conditions in their past" (particularly part (c) for this).

Table 2.

Health Status

Member Name	Compared to others his age					Compared with 5 years ago				
	Much Worse	Worse	Same	Better	Much Better	Much Worse	Worse	Same	Better	Much Better
1										
2										
3										
4										
5										
6										

(a) How do you think _____'s health is compared to others his own age? (Check appropriate place in table.)

(b) How do you think _____'s health is compared to five years ago? (Check appropriate place in table.)

(c) And as you look back over the lives of your family members, what would you say was the most serious health problem he ever had? That is, tell what was wrong when _____ was the sickest he's ever been.

(d) What did you do about it?

This question is relevant if it is assumed that present and future demand and use of health care service is conditioned by past health history and how the person views that history vis a vis the history of other persons.

Question 3. Actual utilization of the health care delivery system in the immediate past

This question involves a set of probing questions that determines what parts of the health care delivery system have been used by the individuals in the family over a relevant period in the past (say, the six months or the year immediately preceding the interview). The probes are administered as a check list of possible providers. The respondent is asked simply to assist in checking off the appropriate places for each family member. A subset of such providers is included as an indication of the scope of providers that might be used in such a list. In practice a much more comprehensive list would be used. Such a list is included in the Health Survey Package. Space is provided for the interviewer to respond for the family members.

Table 3.

(a) Did any member of your family see these health care providers at any time since _____?

	#1* Name	#2 Name	#3 Name
Your family or regular doctor	N Y	N Y	N Y
General practitioner	N Y	N Y	N Y
Obstetrician or gynegologist - That is, woman's doctor	N Y	N Y	N Y
Surgeon - That is, a doctor who does operations	N Y	N Y	N Y

*N = No, Y = Yes.

Table 3. Continued

(b) Now I will read another list of persons who give health services. After I read each, would you please tell me if anyone in your family received services from any person of this specialty at any time since (date) ? Include services in offices, clinics, homes, or anywhere else?

	#1 Name	#2 Name	#3 Name
Chiropractor	N Y	N Y	N Y
Psychologist	N Y	N Y	N Y
Social Worker	N Y	N Y	N Y
Marriage Counselor	N Y	N Y	N Y

(c) Did anyone in your family go to any places for help - other than the ones we have talked about - at any time since ?

	#1 Name	#2 Name	#3 Name
Mental health clinic	N Y	N Y	N Y
Social work or family agency	N Y	N Y	N Y

A rule of thumb for the administration of this is for the interviewer and the respondent to agree that each separate item checked shows a contact with the provider indicated for:

(a) a visit of one family member for a condition that was experienced once and treated in one contact

(b) multiple visits by a single family member for a single chronic condition to a variety of providers (name first provider contacted and skip rest)

(c) visits for several family members with identical conditions to a single provider (as in the case of a checkup for all the children in the family).

There would be only one provider checked as one contact in each of these cases.

Other information can also be collected at this time with the use of the supplemental forms that collect information describing the locations, conditions costs, and use of supporting facilities and providers. For each of the providers seen by the respondent or a member of his family (as described in the points a, b, and c above), a Facility Used Form could be completed (Appendix 1). Further, if the contact required hospitalization or nursing home confinement, a Hospital Stay Form would also be completed (Appendix 2).

Evidence from trial use of such forms shows that they can be easily administered immediately after the completion of the check list, with a little practice on the part of the interviewer, and that the respondents generally are able to provide information within an acceptable degree of accuracy from memory.

Experience shows that the average family might have as many as four Facility Used Forms and one Hospital Stay Form. Some will have none and others will have more.

Question 4. Reasons why facilities were not used

A series of questions invites the respondent to describe the reasons why he or members of his family thought about seeking the services of health care providers but failed to actually make the contact. It uses the No Contact Form as a means of recording these responses (Appendix 3). Responses are taken verbatim so that the expression of the perceived constraint on health care accessibility is revealed. The researcher will

find it relatively easy to classify responses into such categories as cost, accessibility, etc.

In practice, there should be every effort made to encourage the individual to respond. An answer indicating that the person never thought about seeing a provider that he did not follow up with a visit should be viewed with skepticism. On the other hand, the interviewer should not indicate his judgment about the apparent seriousness of the condition that was not referred to service. These judgments are clinical in nature and other opinions should be sought as distinctions are drawn between the frivolous and the serious symptoms that were not referred.

Question 5. Living environment

While the occupation of the individual might suggest the link between the individual and his use of health care services (if there is an apparent higher rate of use for one occupational class or another, there would be indications that the type of occupation had negative health experience related to it which might suggest environmental health programs for work places), the individual's living space and its setting may also have impact. A check list describing the general condition of the dwelling can be completed by the interviewer as another source of information that might explain variation in the utilization of health care service. Such conditions as the type of residence, location, surroundings, and interior condition are useful to note.

Survey of Personal Health Care Providers

Considerable data describing the numbers and locations of many health care providers is already available in published form. Other aspects of providers, such as their usual catchment populations and referral patterns, are not readily available (although there is some future promise of this) to health care planners, particularly consumer-oriented health care planners. Further, the data that is available in most cases is more suited for study of the science and technology of health care, focusing on medical treatment possibilities rather than on information that is useful for planning decisions relating to cost and its distribution. This can be readily explained by noting that only recently have significant resources been allocated to health planning at a sub-state level. Consequently the demand for such data is of recent origin and data collecting systems have not yet fully responded to this demand.

The provider surveys discussed below are suggested as means of quantifying some of the needed planning parameters. One survey describes information for hospitals and could be easily adapted to nursing-home use. The other deals with hospital staff members (doctors of medicine and osteopathy and others) but could be adapted for chiropractors, dentists, optometrists, and other health care providers that the public identifies.

Hospital information survey

Question 1. Patient payment patterns By comparing the dollar value of payments received from various sources, the extent and means through which hospital costs are transferred to the public can be readily

seen. The costs of hospital care are always passed onto the public, but the distribution of the burden of cost is different depending on the means of transfer. For example, increased costs in a hospital that derives its income largely from private payers will fall immediately and selectively on those who use the hospital, while greater receipts from third-party payers (those firms in the health insurance business) indicates a broader spreading of cost that will eventually be borne by many--particularly the wealthier, the employed, and the better educated whose taxes and premiums are more correlated with income--whether they in fact use the hospital services or not. Dollar income within the relevant accounting period should be determined for various government sources (Medicare, medicine, workmen's compensation, etc.) and non government sources (Blue Cross, other insurance, self pay, etc.)

Question 2. Staffing: doctors of medicine, doctors of osteopathy, and other staffing The human resource complement of a hospital is an important determinant of the quantity and quality of service a hospital can deliver. Knowledge of the specialties and level of certification (i.e. board certified, board eligible) of the medical staff in hospitals is useful as a means of assigning a quality measure to the other services offered by the hospital. Data should indicate the number of medical staff with fulltime, courtesy, or consultant staff relationships. Data regarding other staffing, brought to the common denominator of man-months or man-years,[1] show the amounts of other human input that the hospital

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[1] A man-year is the equivalent amount of work done by one man in one year, (say, 50 weeks x 40 hours or 2,000 hours). So, two men, each working 1000 hours, would be the equivalent of one man-year. A similar situation exists for the conversion of persons to man-months.

employs. The skill level of these staff members as indicated by level of training is useful as a quality of service measure and as an indication of need for skill upgrading efforts. An extension of this question might be how man-months of time are allocated among the services of the hospital in cases where this is appropriate (e.g., nurses assigned to medical-surgical versus obstetrical services).

Question 3. Services offered There are other sources that list the array of services that hospitals offer both nationally and for the State of Iowa. But, the service offered by 10 beds is quantitatively a different thing than the service of 5 beds, and the data currently available do not generally list capacities. Data needs to be gathered, then, indicating service available and the units of that service available as measured in beds, cardiac monitoring devices, etc.

It is in the area of selective services that hospital costs can rise dramatically because of under-utilization. Further, a relatively complete listing of services available at a hospital aids the health planner in determining how that hospital should and does relate to the total health care delivery system within a functional planning area. Newly emerging exotic X-ray or cobalt treatment capabilities are examples of this, considering the high installation cost and low utilization rates often encountered.

Question 4. Utilization of facilities Several data items describe the utilization of a service in a hospital and, of course, the items are not independent of each other.

The number of beds describes the usual capacity of the service. Some hospitals combine services, or have beds in-float between services, but a usual number can be suggested (even a high-low estimate is reasonable). Patient days are the total number of census days for the period under consideration. It is important to develop utilization data by service capability (i.e. medical surgical, o.b. - gynecological, pediatrics, etc.) Subdivision of these days by age or sex may also be collected. This is useful when making bed-need estimates when age of user is important (such as in pediatrics, obstetrical, and long-term care services). Average occupancy ratio is the total patient days actually experienced divided by the possible patient days (that is, the number of beds times the number of days in the period considered). Again, to avoid undue emphasis on single numbers as representative of an entire time period, a high-low estimation would also be useful to put the overall average in context.[1]

Average length of stay of patients is estimated by dividing the patient days by the number of patients discharged over the relevant time period.

Table 4 is illustrative of the data format used in gathering utilization data.

Question 5. Hospital revenue and expense statement Basic to planning is an understanding of the effect such changes have on the cost of service delivery.

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[1]Another means of placing the current status into a context would be to have the beds and occupancy ratios for past periods of time as well.

Table 4.

4. Utilization of Facilities Sources: accumulated discharge records, monthly reports

	Medical-Surgical	Obstetrical	Gynecological	Pediatrics	Psychiatric	Extended and long term care
a. Number of beds						
b. Average occupancy						
c. Patient days Ages 0-14						
15-64						
65-						
d. Average length of stay						
e. Discharges						
f. Patient discharge days						
g. Deaths while in hospital						
g. Deaths while in hospitals						

h. Live births _____

Newborn discharges _____

Newborn days _____

Intensive and Coronary Care

i. Average length of stay _____

Number of beds

No. of admissions _____

Patient days _____

j. Number of surgeries _____

Suites _____

Major operations _____

Minor operations _____

k. Emergency room _____

Hours service per day _____

Emergency procedure _____

Total visits _____

Analysis of hospital operating statements will reveal revenue and expense associated with a wide range of service category subdivisions (i.e. medical, surgical, coronary care, intravenous therapy, laboratory, dietary food services, etc.) Expense associated with each subcategory can be allocated to salary, supplies, fees, miscellaneous, other, etc.

Fiscal services expense such as administrative costs (i.e. salary, fees, travel, telephone and telegraph), depreciation (equipment and building), employee benefits, and other costs (rents, interest on notes and mortgage) can be developed. Given this breakout of revenues and expenses patient day costs in each service can be calculated by aggregating appropriate service subcategory items.

Given the hospital revenue and expense form (Appendix 4) the basic aggregation and allocations might follow these lines.

Service	Items to include
Intensive care	4, 5, 17
Long-term care	26 (could be added to intensive care if this describes the situation more appropriately)
Obstetrical	6, 7, 8
Pediatrics	9
Emergency	10, 11 (if outpatient clinic included)
Administration	22, 34, 35, 40-43, 48

To the basic service costs, costs of variable support services can be allocated.[1] These can be allocated in proportion to the number of patient days in the various services.

Administrative services could also be allocated to the other patient-serving functions of the hospital, but these would be allocated in proportion to the beds in each service.

Question 6. Patient origin and referral When predicting the future hospital needs of the population, a clear distinction needs to be made between the number and the location of the possible persons for whom service is to be provided. The size of the catchment population for a hospital is indicated (but not guaranteed) by the area previously served. Patient origins indicate this, whether collected on admissions or discharge basis. Once collected, the origins of patients by towns will show the relative importance of various towns to the hospitals in the area. Further, if care is taken to collect information on all hospitals in the area for the identical time period, the tabulated results can show the relative importance of area hospitals to persons living in different towns. This latter estimation does not show whether a hospital outside of the area is even more important to area residents, however. Data gathered should indicate the number and/or percentage of patients a hospital derives from each town it gets patients from.

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[1] Items 12-16, 18-21, 24, 25, 33, 36-38, 45, and 46 (depending on whether the space rented was for patient use or for administration).

Health care professionals questionnaires

A number of basic types of data about the health care professional (i.e. physician, dentist, chriopractor, etc.) should be collected when the researcher is attempting to develop base line data for an area health delivery system.

Basic data about the professional's age, years since licensing, and professional qualifications are desirable to obtain. Questions should be asked about the numbers of patients seen per time period, where seen, and under what circumstances (i.e. emergency, urgent, elective). Additionally, questions can determine the frequency of visits by patients.

It is quite important to ask for data that will reveal the trade area of the health care professional. Patient origin data can be generated for this purpose similarly to the technique used in determining hospital patient origin patterns.

An important consideration in planning for system wide health delivery is the pattern of patient referrals providers have built over time. Questions should be asked that reveal where patients are referred, for what services referrals are made, and the approximate numbers referred in each instance. Here an exact number may be impossible to ascertain but use of codes indicating ranges of magnitudes will adequately indicate the magnitude of referral patterns. Additionally, the data gathered should indicate referrals to other providers as well as referrals to the provider in question by other providers. Questioning should also identify the hospitals, if any, that the provider has staff relationships with and the nature of the relationship (i.e. active staff, courtesy staff, consultant).

As in the case of hospitals, data should be gathered about the kinds of support manpower (i.e. registered nurse, pharmacist, laboratory technician, etc.) that the provider employs in delivering service. Information regarding educational level, full time equivalents employed, personnel change frequency, and salary range are of use to persons planning human resource development programs.

The intensity of use, as measured in office visits and patient numbers, for such support services as X-ray and radiology, laboratory, emergency room, pharmacy, electrocordiology, etc. is useful information in developing profiles of service availability and demand.

V. SUMMARY

Confusion has sometimes existed among health planners, especially at a local and multi-county level, as to what data are necessary for planning. Further, the terms health, health care, and health care delivery have often been incorrectly understood and interchanged. This report has attempted to distinguish among the concepts denoted by these three terms and to suggest how they are related. Such a background of understanding will allow health planners to more accurately identify what they desire to plan for and how to proceed with the task.

Planning requires an understanding of goals and objectives to be achieved, but it also requires knowledge of how a system--in this case the health care delivery system--fits together. From that knowledge flows an appreciation for, and understanding of, the kinds of data upon which planning for health care delivery is based. Two points need to be

reiterated: (1) data for planning are necessarily different than the data needed for medical research. We have suggested why this is true and some of the differences that are encountered. (2) Data for planning should be sufficient to infer what choices people are likely to make under change. Again, we have identified the data needs and have suggested question formats for gathering such data.

Health planners will find the description of the health care delivery system to be particularly useful in understanding system linkage. The discussion of suggested survey instruments and examples included in the report's appendix should be of substantial practical value to health planning groups, whether at a local area or statewide level.

APPENDIX

ppendix Table 1. Survey Book No. _____

'acility Used Form: Describing visits by person _____,
reported in Questions 3 (a), (b), (c), (d), (e), (f), (g) to

_____ (Specialty)

/hat condition led _____ to go to see this (Dr, clinic, hospital, etc.)?

_____

_____

.. What is the name of the (doctor, clinic, hospital, etc.) that _____ went to since ?

Name _____

Location _____

If hospital: Did _____ stay overnight on the time you mentioned?

N - go to Question 4 now
Y - go to Hospital Stay Form then to Quest. 4

If doctor: Did Dr. _____ take care of _____ while _____ was staying in the hospital overnight?

N - go to Question 2 now
Y - go to Hospital Stay Form then to Quest. 2

. (a) How many times did _____ go to Dr. _____'s office or (clinic, hospital) since ?

Office _____
Clinic _____

(b) How many times did _____ see Dr. _____ at home? _____

. (a) How much did Dr. _____ or (c, h, etc.) charge for these visits? (est? Y N)

1. Charges $_____

(b) How much was covered by insurance or other prepayment?

2. Prepaid or insurance $_____

(c) How much was "forgiven" or free to you?

3. Free (why?) _____

(d) How much came out of your own pocket?

4. Out of pocket $_____
(Does 1 = 2 + 3 + 4? _____
If not, why?) _____

See Hospital Stay Form for All _____ Part of these _____

Appendix Table 1. Continued

4. (a) Did Dr. _____ or _____ give _____ any prescriptions? (Y N)
Tell _____ to buy any medicines? (Y N)
Tell _____ to buy anything else? (Y N)

(b) (For each "Y" circled) How much did _____ spend for _____ since _____? (enter to right)

(c) What amount of this was paid out of your own pocket? _____

No prescriptions, medicines or other _____
Prescriptions $_____
Medicines $_____
Other things (specify)
_____, $_____
_____, $_____

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5. Did _____ see any other _____ like the one described here since _____?
N - go to next reported visit in Question 3 for this person. If last reported visit for this person, go to next person reporting visits in Question 3.
Y - fill in another Facility Used Form

Appendix Table 2.

Hospital Stay Form Survey Book No. _____

For Person _____ as a result of his reported visit to _____.
(Specialty)

Hospital name _____ Location _____

1. How many times did _____ stay in this hospital since ? _____

For the 1st (2nd, 3rd, etc.) of these stays (If more than 1, fill out new form):

2. Date of entry _____, _____ 3. Number of nights stayed _____

4. Was the stay for pregnancy? Y N

If not, were there any operations performed? Y N

If so, what were they? _____

_____

Now I'd like to ask some questions about the bills for this stay.

5. Who was the doctor in charge while _____ was in the hospital?

Name _____ Specialty _____

6. (a) What were his total charges? Charges $_____
(b) How much was prepaid or covered by insurance? Prepaid or ins. $_____
(c) How much was free or forgiven to you? Free to user (why?) $_____
(d) How much did you pay out of your own pocket? Out of pocket $_____

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7. Were there other doctors who sent bills, such as surgeons, anesthetists, consultants, or other specialists? (Y N)
If No, go to Question 8. If Yes:
What was one of them? Name _____ Specialty _____
(a) What were his total charges? Charges $_____
(b) How much was prepaid or covered by insurance? Prepaid or ins. $_____
(c) How much was free or forgiven to you? Free to user (why?) $_____
(d) How much did you pay out of your own pocket? Out of pocket $_____
Other? (repeat (a), (b), (c), (d)) $_____

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8. What was the hospital's bill for this stay? Charge $_____
(a) How much was prepaid or covered by insurance? Prepaid or ins. $_____
(b) How much was free or forgiven to you? Free to user (why?) $_____
(c) How much did you pay out of your own pocket? Out of pocket $_____

Appendix Table 2. Continued

9. Were there any other charges during this stay? Y N

Special nurses?	N Y (if any)	Actual charges you paid out	$_____
Ambulance?	N Y	Actual charge you paid out	$_____
Other? _____	_____	Actual charge you paid out	$_____
_____		Actual charge you paid out	$_____
_____		Actual charge you paid out	$_____

10. When _____ was discharged from this stay, where did he go?
home _____ nursing home _____ other hospital _____ other _____

11.(a) Were you satisfied with this choice of action? Y N
(b) If not, what would you have preferred? _____
(c) Why was this preference not followed with action? _____
_____

If no more Hospital Stay Forms needed, return to questions on Facility Used Form (Questions 2 and 3).

Appendix Table 3.

Survey Book No. _____
Segment No. _____

NO CONTACT FORM

Enter family member name. _____

Check time number (1), (2), (3), (4), (5), (6)

(a) What health condition made you think about going?

_____

_____

_____

(b) Where did you think about going to get service?

_____

_____

_____

(c) What made you decide not to go?

_____

_____

_____

(d) Was this the only time for family member? Yes No
(Circle)

(If No, repeat: Remember that we're talking about _____.

(a) What other condition made you .....?

(b) Who or where .....?

(c) What made you .....?

(d) Were these the only times?

(If Yes, go to next family member's name and ask again. If Yes for next member, repeat (a), (b), (c), (d).
If still No, proceed to next member and make new NO CONTACT FORM.
When all members covered, go to next question.

Appendix Table 4.

5. Hospital Revenue and Expense Statement
(for most recent fiscal year)

Service Category	Revenue	Operating Expense				Other (Specify)	Total
		Salary	Supplies	Fees	Misc.		
1. Medical							
2. Surgical							
3. Operating room							
4. Intensive Care							
5. Coronary Care Unit							
6. Obstetrical							
7. Delivery Room							
8. Labor Rooms							
9. Pediatric							
10. Outpatient clinic							
11. Emergency Room							
12. Intravenous Therapy							
13. Anesthesiology							
14. Inhalation Therapy							
15. Renal Dialysis							
16. Whole Blood							
17. Electrocardiology							
18. Laboratory-Pathology							
19. Psychiatric							
20. Radiology-Diagnostic							
21. Pharmacy							
22. Nursing Services Administration							

Appendix Table 4. Continued

5. Hospital Revenue and Expense Statement (cont.)

	Revenue	Operating Expense: Salary	Supplies	Fees	Misc.	Other (Specify)	Total
23. Ambulance							
24. Medical Records							
25. Central Services Administration							
26. Long term care							
27. Gross Patient Services Revenue							
28. Gross Patient Services Expense							

29. Deduction from revenue--

A. Adjustment for bad debts	
B. Contractual adjustments	
C. Other adjustments	
30. Total deductions	
31. Other operating revenue	
32. Subtract total of Line 28 from total of Line 27; subtract line 30; then add Line 31 to the result. This equals total adjusted operating revenue.	

Service Category	General Services Expense: Salary	Supplies	Fees	Misc.	Other (Specify)	Total
33. Dietary Food Services						
34. Plant Engineering and Maintenance						
35. Buildings and Grounds						
36. Housekeeping						
37. Laundry and Linen						
38. Credits and Collections						
39. Total General Services Expenses (Sum of Lines 33-38)						

Appendix Table 4. Continued

Fiscal Services Expense

40. Administrative and general--
    - A. Salary _____
    - B. Fees _____
    - C. Supplies and office expense _____
    - D. Telephone and telegraph _____
    - E. Dues and memberships _____
    - F. Travel _____
    - G. Insurance _____
    - H. Miscellaneous _____

41. Total administrative and general expense _____

42. Depreciation--
    - A. Major moveable equipment _____
    - B. Provision for replacement of lessor's equipment _____
    - C. Building depreciation _____

43. Total depreciation _____

44. Employee's benefits--
    - A. Social Security _____
    - B. Group life and health _____
    - C. Workmen's compensation _____

45. Total employee's benefits _____

46. Rent--
    - A. Equipment rentals _____
    - B. Building rentals _____

47. Total rent _____

48. Interest on notes and bonds _____

49. Total fiscal services expense _____

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