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A CLASSIFICATION SCHEME FOR MEDICAL EXPENDITURES

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ABSTRACT

Medical care represents a significant portion of society's response to problems affecting social welfare. While the problems surrounding medical care are complex, a major part of these problems can be attributed to the fact that medical care expenditures are viewed indiscriminately without regard for the nature of the expenditures themselves. This paper presents a framework to differentiate various types of medical care expenditures. The paper argues that medical care expenditures can be classified as either instrumental-consummatory or as external-internal relative to the medical care system. The consequences of this classification and some conclusions which may be drawn from it are explicated in the paper.

Medical care represents a significant portion of our society's response to problems affecting the social welfare. In fact, expenditures in medical care have increased at an unprecedented rate resulting in a growing dissatisfaction with the existing delivery system.

While the problem is indeed complex, involving system characteristics, a part of the problem can be ascribed to the fact that medical care expenditures are viewed indiscriminately with little regard for the nature of the expenditures themselves. The purpose of this paper is to present a framework to differentiate various types of medical care expenditures.

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The framework presented here has two distinguishable characteristics. First, it attempts to conceptualize medical care, and thus expenditures for that care, from a social-technical perspective. That is, emphasis is given to the nature of current technology and pervading norms as the defining parameters of the health system. This is in contrast to other perspectives which define medical care in terms of a deviance processing system (Smith and Kaluzny, 1975; Aubert and Messinger, 1970) or in terms of a structural-functional perspective (Veney, 1968).

Second, the framework offers a mechanism for planning and decision making to determine what is or is not within the purview of existing health agencies, and to determine where available technology can be most effectively applied. This is in contrast to the usual conceptualization of health services as being reactive to the needs and demands of the larger social system. For example, studies on the utilization of health services, while presenting an increasingly sophisticated model of such behavior (Anderson and Neumann, 1973), implicitly assume the legitimacy of that utilization within existing health care organizations. The framework presented here raises questions as to this legitimacy and attempts to address the policy implications for health system planning.

Basic Dimensions of the Framework

A useful classification of medical expenditures lies in the technical and normative attributes which characterize health services. These attributes are reflected in two dimensions.¹ The first is the impetus for seeking care. For our purposes it is defined as the instrumental-consummatory dimension. Instrumental care is sought (or provided) primarily for the avoidance of death or disability. The detection and treatment of various types of cancer, the treatment of automobile accident victims, insulin therapy or renal dialysis are examples of instrumental care. When such care is not provided, premature death or preventable disability would result.

1. Social scientists have a propensity to build classification schemes. For example, in the general area of sociology Parsons (1951) has modelled social systems in a series of two-by-two tables, Perrow (1967) has provided a model for the comparative assessment of organizations, and Lazarsfeld (1958) has built a whole sociological methodology on four cell boxes. In the area of health, Freidson (1967) has presented a taxonomy of deviance and Roemer (1963) a classification for different types of administration within health services.

Care may also be provided for largely consummatory reasons. Consummatory services are those services which are not necessary for or related to the prolonging of life or the avoidance of disability. In essence they represent, in and of themselves, desirable personal goods. Such services include a large class of cosmetic surgery, most orthodontia, much non-prescription medicine (as well as a significant amount of prescription medicine), non-therapeutic abortion, most maternity care, and care rendered to the incurably ill.

There may be considerable social pressure to make a consumption expenditure. For example, the upper-middle class family whose only daughter has buck teeth will perceive a great deal of social pressure to submit that daughter to orthodontia. They may, in fact, place a greater value on this medical service than they do on the quality of food they consume or on the state of their housing, or may even value it above certain instrumental medical expenditures for adults in the family. Nonetheless, it remains a consumption item in the same sense that a better automobile or a bigger house are consumption items.

This is not to say that there is a clean, well defined line between instrumental and consummatory care. On the contrary, it should be obvious that the dividing line is difficult to pinpoint precisely. However, it is possible to discuss the more polar types and to gain substantial agreement as to what they are. Few would question, for example, that renal dialysis is an instrumental service. Admittedly, the quality of life under dialysis may decline, but when an individual has reached the point of end-stage renal failure, dialysis or kidney transplantation can mean the difference between extra months or years of life and death within hours. Leukemia, on the other hand, is considerably more difficult to classify. Once leukemia has moved into advanced stages, there is little that medical science can do. Expenditures for the medical treatment of leukemia, while directed toward alleviation of pain and suffering, approach a consumption item to the extent that treatment is ineffective in averting death. In a sense, expenditures for a leukemia victim become a consumption item for the relatives rather than for the patient himself.

The second dimension of the model is termed the external-internal dimension. This dimension is concerned with the point at which an effective intervention can take place in dealing with what ultimately becomes a medical care problem. For example, a health problem which has a known etiology and a reasonable intervention point outside the medical care sector is an external problem. Lead poisoning is such a health problem.

Since the etiology is known, efforts necessary to prevent lead poisoning are essentially non-medical efforts. It is only when lead poisoning is not prevented that it becomes a medical care problem per se. Other problems which are external include undesirable states arising from pollution, malnutrition, poor housing, crowding, and faulty or dangerous transportation systems. They include states of self-induced illness such as cirrhosis and lung cancer. And they include certain conditions which, though preventable and not morbid in themselves, do by definition result in physician's services. An example is maternity care. Finally, external problems include those genetic defects which are predictable. In each of these areas there are available strategies external to medical care for dealing with (or generally averting) the problem. Undoubtedly, some of these strategies are more effective than others.

On the other hand, if the etiology of a health problem is unknown, then the problem must be considered an internal problem. Again, the example of leukemia is relevant. At present, the etiology of leukemia is largely unknown. If leukemia as a health problem is to be dealt with at all, it must be dealt with as a medical care problem. There is no known intervention point outside the medical care system.

Two points related to the external-internal dimension should be noted here. First, the distinction as to whether a given health problem is external to the medical care system is closely dependent on existing technology. For example, until the link between the anopheles mosquito and malaria was established, malaria had to be dealt with, albeit with limited effectiveness, as an internal medical care problem. Once the link was established, other intervention points became available and malaria must now be considered an external problem. Second, the distinction between external and internal is not a distinction between whether a given problem is dealt with in the medical care sector or not. We are concerned only with problems which actually receive medical care. The distinction between external and internal medical care problems is whether given existing technology, any specific problem can be dealt with in a more effective way. For example, malaria can be averted. Therefore, treatment of malaria is medical care for an external problem.

It should also be recognized that the distinction between external and internal problems is a continuum, not a dichotomy. It would be relatively easy to obtain agreement that lead poisoning is an external problem in the terms discussed here. There would be considerably less agreement as to whether tuberculosis or arteriosclerotic heart disease represent external or internal problems.

If we dichotomize the External-Internal and Instrumental-Consummatory continua, the following four-fold table with designated sectors may be constructed:

Figure 1
MEDICAL SERVICES CLASSIFICATION

	INSTRUMENTAL	CONSUMMATORY
EXTERNAL	Cirrhosis Lead poisoning SYSTEM FAILURES Tuberculosis	Non-therapeutic abortion DEFINITIONAL Maternity AILMENTS
	--Arteriosclerotic heart disease--	Nursing home geriatrics
INTERNAL	Vascular lesion of CNS NON-PREVENTABLE DISEASE	Psychoanalysis
	Chronic nephritis Leukemia	CONSUMPTION ITEMS Orthodontia Cosmetic surgery

System Failures:

In the upper left hand cell are found those conditions which arrive in the medical care system because of adaptive failures in other sectors of the larger society. Obvious examples include cirrhosis, lead poisoning and rat bites. An example which is less clear and more subject to conjecture is tuberculosis. Nevertheless the care provided in this sector is provided because the problem is not solved at an earlier stage in another part of the larger social system. This type of problem includes the leading causes of death and disability, such as auto accidents, other types of accidents, suicide, homicide, and drowning, for all people up to the ages of 30-35 (Health Hazard Appraisal, 1972). Thus, this category contains a large proportion of the medical care problems which could have been solved outside the medical care context, but were not.

Despite the need to deal with these problems outside the medical services sector, there are two substantial obstacles to doing so. First, there is little information about the amount of money spent for or the total volume of medical services allocated to system failures. Conse-

quently, it is difficult to generate the impetus among those people who are concerned about costs and services to promote an attack on causes rather than treatment. There is great difficulty in estimating the total medical care expenditures devoted to the treatment of conditions which represent system failures. The National Safety Council (1973) estimates such expenditures for automobile accidents alone at about 1.4 billion dollars per year. Using data from the National Cancer Survey and the Social Security Administration it is possible to estimate that about a half-billion dollars a year go for medical treatment of lung cancer (Scotto, 1972; Social Security Administration, 1972). It is much more difficult to estimate the medical care expenses for such conditions as alcoholism and cirrhosis, emphysema, drug addiction, or lead poisoning. It has been estimated that there are nine million alcoholics in the U.S. Cirrhosis represents one of the leading causes of death for Americans in their middle years. Perhaps as many as 13 million people in the U.S. suffer from emphysema. All of these are major health problems yet almost nothing is known about the extent of the burden which these place on medical services.

Heart disease, both the leading cause of death and a major cause of disability in the U.S., is to some degree a system failure. There is ample evidence that arteriosclerotic heart disease can be averted through judicious diet, avoidance of smoking and proper exercise. Of course, not all heart disease could be eliminated by proper life styles. However, a significant portion of medical care is allocated to heart disease and an admittedly unknown but probably substantial portion of the need for this care represents a system failure. As long as the impact of these system failures can be obscured in an aggregate expenditure figure there will be little impetus within the health world for change, specifically for the elimination of the need.

A second and more difficult obstacle to the reduction of need in this sector is the universal human tendency to deal with a problem only after it has become acute. We may ignore completely the fact that millions of children grow up in homes that have lead painted walls, that are rat infested, or that are potential fire hazards. But when a fire sweeps through one of those buildings, leaving the same children with massive third degree burns, all the best efforts of medical science will be provided. We do little more than provide lip service for safety in automobile travel, but when an accident occurs, the best emergency services available are rushed to the scene.

Moreover, what is perceived as an acute problem depends on the situation. Shortly after the general ban on the use of DDT, a substitute pesticide, Parathion, came into use on tobacco in North Carolina. Para-

thion is extremely toxic if not handled properly and in the first summer of its use as many as nine children died in North Carolina tobacco fields from its effects. This prompted an intensive campaign by the State Board of Health to reduce the use of Parathion in favor of less toxic pesticides. The irony here is that during the same time period it is likely that as many as 1500 people died in North Carolina alone from the effects of tobacco induced lung cancer, a problem which the State Health Department chooses to ignore.

It is perfectly reasonable to be concerned about the Parathion poisoning. Given our national belief in personal freedom, it may even be reasonable to ignore the fact that many cigarette smokers are systematically shortening their lives. But it should be recognized that the money expended and the services rendered to treat lung cancer are resources that would not have been required had we somehow managed to convince people to avoid activities that have a high probability of resulting in the need for expensive medical services. It is desirable to know, assuming a real and not simply simulated shortage of medical services, how much more could be done in the treatment of non-preventable disease if just those system failures we understand could be cut in half. Yet, because of our data keeping patterns, that information is not available.

Non-preventable Disease:

In the lower left hand cell are found those problems which are solely the concern of the medical care sector. The services provided are critical to continued life or the avoidance of disability. For example, though the etiology of chronic nephritis is unknown, medical care such as renal dialysis is likely to have a substantial impact on length of life if the condition arises.

It is widely believed that access to medical services is a basic human right. No one who can derive real benefit from the services of a physician, from a medical procedure, from a hospital stay, should be denied these services because of lack of funds, lack of knowledge about the availability of services, or an inequitable distribution of facilities. The type of medical services being referred to in this statement are usually the type represented by the internal-instrumental sector.

While the belief is universal the costs for such medical services are usually acknowledged as being too high. The solution to that problem, viewed from this sector, is very difficult and complex. If we are to accept such reports as Heal Your Self (1970) and The American Health Empire (Ehrenreich and Ehrenreich, 1970) it will be necessary to increase the number of services available so the entire population will have

access to all the services which would be appropriate within this sector. This inevitably leads to the need for more manpower, more facilities and to higher costs, at least in this sector.

There is some hope that changes in procedure and organization-- for example, the broader availability of health maintenance organizations (HMOs)-- might lead to reduced need. It is a prevalent assumption that HMOs will produce earlier and more routine, and hence less expensive, care. There may also be some savings realized through increased efficiency in production of medical services. However, little solid information exists to suggest how the provision of medical services should be made more available and efficient, or what would be the impact on cost and health status (Newhouse, Phelps and Schwartz, 1974).

In the last analysis, however, the singular problem in this sector is that of providing more services. These are services that will prolong life or avoid disability and if a level of satisfaction with efficiency and effectiveness is reached, we should then strive to provide such services to all who need them. This may indeed raise costs within this sector, but, given both officially stated societal goals and the requirements of humanity, no other course seems appropriate.

An implicit assumption of most discussions of the distribution and costs of medical services tends to be that they are of this internal-instrumental type. Hence when we talk of \$84 billion or \$100 billion spent for personal health services, we tend to think of those dollars as going for internal-instrumental services. But as the model suggests, these expenses may be in fact distributed in the other sectors raising serious question as to their desirability and/or legitimacy.

Consumption Items:

The lower right hand cell is the internal consumption cell. This section of the medical care system is concerned with those services which are desired consumer goods. They provide obvious psycho-social fulfillment for the consumer apart from the therapeutic value of the service.

The question of need becomes irrelevant and is replaced by the question of demand. A certain population subgroup demands these services and certain medical professionals have responded to this demand. The issue of efficiency or effectiveness is also irrelevant in this sector, as long as it is being considered apart from medical services as a whole. In fact, the obvious lack of efficiency and questionable efficacy of a process such as psychoanalysis is precisely its appeal. Psychoanalysis (cosmetic surgery, etc.) represents evidence of status

to which not all can aspire. Only when one has reached a certain level of affluence is he able to avail himself of a service that requires so much time and expense for so little observable output.

Consider also the recent attempts to close the taste and smell clinic in the National Heart and Lung Institute (NHLI). While there is substantial question as to the relevance and scientific quality of the work done within the clinic, all attempts to close the clinic and re-allocate its \$200,000 per year budget have failed. In fact, Congress, through the Senate Appropriations Subcommittee on Labor, and the Department of Health, Education and Welfare in its budget report, mandated the continuation of these services despite their questionable efficacy (Culliton, 1975).

There is, again, little information on the total amount of money spent on consumption items. It is possible, on the basis of American Dental Association data (1966; Johnson and Ake, 1971) to estimate that about a quarter to a half billion dollars is spent each year on orthodontia. But estimates of the amount of money spent on cosmetic surgery and psychoanalysis seem to be wholly unavailable. It may be reasonable to assume, however, that the total amount expended in all these areas is not large, perhaps less than two billion dollars.

If one considers the consumption sector alone, it would appear highly unproductive to be concerned about services rendered or rising costs of care. It is likely that more services will be sought and provided in this sector as the economy improves, thus high expenses in this area, like a high gross national product, might be viewed as desirable evidence of a burgeoning economy. If one considers the total medical care industry, however, more specifically the internal-instrumental sector, and if at the same time one agrees there are not enough services to go around in that sector, concern about medical care as a consumption item is legitimate.

Informed opinion would probably differ on whether services for nonpreventable disease are limited because too much medical consumption was being enjoyed. But if this is the case, it is possible (although difficult) to limit the availability of medical consumption items. A heavy tax could be placed on orthodontia or plastic surgery, the number of medical/surgical residencies in these disciplines could be sharply limited, or only a limited number of practitioners could be licensed. It is doubtful that the problem of the distribution of services is acute enough to lead to such drastic measures. Perhaps the best to hope for right now is the general recognition that certain medical

services are desired goods and as such they are different in quality from other medical services.

Definitional Ailments:

The cell in the upper right hand corner represents services which are medical problems by definition of the society rather than because of any inherent quality of the problems themselves. An extreme example of this type is nontherapeutic abortion. It is strictly a consumption item and the condition giving rise to need or desire for this service is wholly preventable without resorting to medical care. Prior to the passage of liberalized abortion laws in several states, nontherapeutic abortion did not officially occur. Such procedures were not generally recognized as medical care services and did not add to the total medical care expenditure. Following the passage of these laws, nontherapeutic abortion has been defined as a medical service. Money spent for such abortions will be counted as medical care expenditures.

Maternity and geriatric care are other, albeit less clear, examples of services which are included in this cell. In many primitive societies normal childbirth and old age are not considered medical problems and are not dealt with by the medical establishment. While more advanced societies tend to define maternity into the medical care sector, many of these societies still maintain the institution of the midwife for normal delivery. It is largely by society's definition rather than by the inherent nature of the task that midwives are considered part of the medical care sector.

The amount of money spent for maternity care each year, somewhere about \$1.3 billion², is relatively easy to estimate. It is much more difficult to find overall estimates of the cost of abortion, though it is likely to be much less than the cost of normal deliveries. As time goes on, however, the potential cost of abortion is quite high if non-medical interventions--or perhaps other medical interventions--are not employed.

Observations on Next Steps: Policy Implications

Having suggested a model to illustrate medical care expenditures,

2. Estimates of maternity care costs may be found in Ronald Anderson, et al., National Trends and Variations in Expenditures for Personal Health Services, Center for Health Administration Studies, University of Chicago, January 1973.

it is critical to consider its utility. As stated at the outset, concern about the cost and distribution of medical services is too simple and undifferentiated. Thus, despite the fact that the U.S. spends a great deal of money on medical care, we have relatively little knowledge about what is being purchased. A large part of the expenditures buys hospital services, another part buys physician's services, part buys drugs, and so on. However, we know very little about the extent to which expenditures go for system failures, nonpreventable problems, consumer items, or definitional ailments. There is, ostensibly, a crisis in medical care related to escalating costs and maldistribution of services. We are not challenging the existence of such a crisis. But in considering the seriousness of the situation, it is important to know what proportion of resources is going to provide luxury care; what proportion is being devoted to problems created by a hazardous environment or hazardous personal life style; and what proportion is going to definitional ailments which could be dealt with more effectively through other institutional arrangements within the society.

It may be, of course, that these proportions are quite small. In that case we can return to our concern about the cost and distribution of medical care with a clear conscience and develop mechanisms and structures to insure a more equitable distribution of health services. However, it is more likely that the extent of medical resources devoted to services outside the nonpreventable category is quite large. In particular, expenditures for those medical problems which represent system failures are likely to demand a large share of the medical care dollar. If this is the case, then the taxonomy presented here could lead to a new evaluation of the utilization of our medical care resources and the organization needed to cope with problems of health. If, for example, we are expending substantial medical resources on consumption items, we may wish to examine methods of reducing this use of care. Insurance companies have traditionally limited the extent of optional utilization by their insurees by specifically excluding such things as nontherapeutic cosmetic surgery, dental care of all types, and even office calls. The question of whether or not to attempt to limit consumption items has definite implications for the services provided as benefits in any National Health Insurance scheme and for the development and training of specialist manpower.

If we are spending unacceptable amounts of money on system failures, national policy is also implicated. If the expenditure for treatment of lung cancer and emphysema is estimated at \$2 billion per year, we might decide that, for smokers, treatment of these diseases would not be covered under a national health insurance scheme. This, of course, is a blasphemous statement, but it would be difficult to accept the idea of laying

out large amounts of money to pay medical expenses for people who engage in known and avoidable hazardous behavior. The same policy might be applied to the treatment of alcoholism and cirrhosis. Indeed, insurance companies again, have largely excluded treatment of alcoholism as a benefit, although they do not exclude cirrhosis.

The National Safety Council estimates an expenditure of \$1.4 billion to treat the victims of automobile accidents. It is difficult to know whether that is a large expenditure or not, but if it is, there are a number of strategies that could help to reduce it. Interestingly, a reduction in medical care for auto accident victims may be one of the serendipitous results of the recent energy crisis.

The task envisioned by this paper is not a simple one. It will require, first, an agreement on the important dimensions. We believe those presented here are worthy of serious consideration, but modifications of them might produce more useful dimensions. Given agreement on the dimensions of importance, it is necessary to classify medical services along those dimensions. Such a task would require the extended effort of a body of experts but could be accomplished through a methodology such as the Delphi technique or paired comparisons. Finally, given an ordered taxonomy of services, it would be necessary to modify and expand current record keeping and collection techniques to acquire data relevant to the classification. This would be an extensive task, but given the current concern about the money spent on medical care, it is an essential one.

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