

Major Applied Research Paper No. 4
EFFICIENCY IN THE CONSUMPTION
OF HEALTH SERVICES:
CONCEPTS AND RESEARCH NEEDS

Phase I:
Review of Concepts and Literature,
and Preliminary Field Design

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Written by:

Robin Barlow, Ph.D.
with
Christine Kolars
Cathy Peters
Bilkis Vissandjée

University of Michigan
School of Public Health

Consultants, Abt Associates Inc.

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Health Financing and Sustainability (HFS) Project

Abt Associates Inc., Prime Contractor
4800 Montgomery Lane, Suite 600
Bethesda, Maryland 20814 U.S.A.
Tel: (301) 913-0500 Fax: (301) 652-3916

Management Sciences for Health, Subcontractor
The Urban Institute, Subcontractor

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ABSTRACT

This paper develops a conceptual framework for analyzing "consumption inefficiencies" in the provision of government health services in developing countries, and also reviews the empirical literature in this field. The inefficiencies, causing health losses for the population, result from such factors as price distortions, misinformation, and externalities. Corrections for the inefficiencies are possible with user charges and health education programs. A project of field research on consumption inefficiencies is proposed, based on estimating cost-effectiveness ratios for selected government health services.

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EXECUTIVE SUMMARY

This paper is concerned with defining and measuring the degree of efficiency in the consumption of government health services in developing countries. Efficiency is defined as maximizing performance with given inputs. It is assumed that the objective of the government health system is to maximize the health status of the population. The health status of the population is much less than what could be achieved with efficient use of the economy's resources. Government health systems are subject to several different kinds of inefficiency:

1. **Fiscal Inefficiency.** The total value of resources allocated by the government to its health services may be less than the optimum.
2. **X-Inefficiency.** The resources in the government health sector may be badly managed.
3. **Divergences Between Private and Social Preferences.** Utility-maximizing behavior by individuals in their consumption of health services will not necessarily maximize the health status of the population. Individuals are often misinformed about the health effects of specific forms of consumption, and often ignore the positive externalities characterizing their own consumption.
4. **Distortionary Pricing.** The prices charged for health services may not reflect marginal cost. Where the ratio of price to marginal cost is high, the service will tend to be underconsumed; where the ratio is relatively low, the service will tend to be overconsumed.
5. **Prohibitive Pricing.** Services sometimes stay unused because their prices are set too high.
6. **Outside Influences on Choice.** Private preferences regarding health care are often overruled by other persons, including health care providers and relatives. These influences sometimes lead to inferior health outcomes.

This paper focuses on the last four kinds of inefficiency, which can be called "consumption inefficiencies." They can be contrasted with inefficiencies on the production side, such as X-inefficiency.

A geometrical model pinpointing the different kinds of inefficiency is presented in Section 2.0. An algebraic version of the model is presented in Section 4.0. Values are assumed for the parameters of the algebraic model, and simulations with the model are conducted in order to show the effects of policy changes on health status and on private utility. Among the policy instruments employed are (a) the prices of health services and (b) health education programs aimed at bringing private preferences for health services into line with social preferences. Hence the theme of the paper could be called "getting prices and private preferences right in the health sector."

A research proposal is made for estimating degrees of consumption inefficiency in the government health services of a specific country (The Gambia). The assessment of inefficiencies will be done by calculating cost-effectiveness ratios. The results of this research could show how major gains in health status can be realized without increasing the total value of resources employed in the government health sector.

A total of 97 publications on consumption inefficiencies in the health sector was reviewed. This literature is synthesized in Section 3.0., and the individual publications are summarized in the Appendix. The literature provides many examples of the four kinds of consumption inefficiency just mentioned, as well as many estimates of the results which can be expected when prices or other policy variables are changed.

1.0 INTRODUCTION

This paper is concerned with defining and measuring the degree of efficiency in the consumption of government health services in developing countries. It offers a conceptual framework for analyzing this type of efficiency (Section 2.0), and reviews the earlier literature on the subject (Section 3.0). The conceptual framework provides the basis for a simulation model which is designed to measure the degree of efficiency in a given health sector (Section 4.0). Finally, a research proposal for estimating the model in a specific case is presented (Section 5.0).

Efficiency in the consumption of government health services can be said to occur when maximum benefits are derived from those services, given certain constraints. These constraints include the total quantity of the resources allocated to the sector, the quality with which the resources are managed, and whatever institutional restrictions apply to the case under analysis. To know whether efficiency in consumption is achieved, it is therefore necessary to know what benefits are meant to be maximized and what institutional restrictions are operative.

Clearly the benefits to be maximized (the "maximands") and the nature of the institutional restrictions vary from case to case, so a pattern of consumption which is optimal or efficient in one situation may not be so in another. This report presents an optimization model which is fairly general in the sense that the assumptions about maximands and restrictions can be altered to a certain degree. In any specific national context, it would be important to use a model whose assumptions reflect national realities.

To stress this point about the variety of reasonable assumptions which can be made about maximands and restrictions, we look first at an alternative model, and then note how our own differs from it. The alternative is provided by Musgrove (1986) in an article entitled "What should consumers in poor countries pay for publicly-provided health services?"

1.1 MUSGROVE'S OPTIMIZATION MODEL

In Musgrove's model, the *maximand* is government welfare (W) which is a function of three variables:

1. The revenue obtained from the user charge (p) imposed at health facilities;
2. The quantity of "necessary" services consumed (N), a distinction being made between "necessary" consumption, which is valued positively by the government, and "frivolous" consumption (F), which is not;
3. The sum of the utilities of individual consumers (U_i), each of which is a function of individual income (Y_i), and the user charge.

The government welfare function can therefore be written as follows:

$$W(p) = p[N(p) + F(p)] + L*N(p) + M*\sum U_i (Y_i, p)$$

where L and M are weights applied to necessary consumption and consumer utility respectively.

A key *institutional restriction* assumed in the Musgrove model is that for each type of government health service, supply is fixed. There is no possibility of switching resources from one service to another, depending on consumer demand.

The process of optimization is shown graphically in Exhibit 1. The supply of a given service is denoted by the vertical supply curve S'S. The demand for the service is shown by ABC, ABE being necessary demand (as judged by the government) and the remainder being frivolous. An increase in the user charge from P_1 to P_2 causes revenue to change from P_1*OF to P_2*OG . This will represent an increase in revenue if the demand curve ABC is inelastic in the relevant range. Offsetting such an increase in the government welfare function will be a decrease in necessary consumption (from OH to OJ) and a decrease in consumer utility. On the assumption of diminishing marginal utility of income, the loss in consumer utility will be larger if the user charges are paid predominantly by lower-income consumers. The task of the policymaker is to find that price (or system of price discrimination) which maximizes W.

1.2 PROBLEMS WITH MUSGROVE'S MODEL

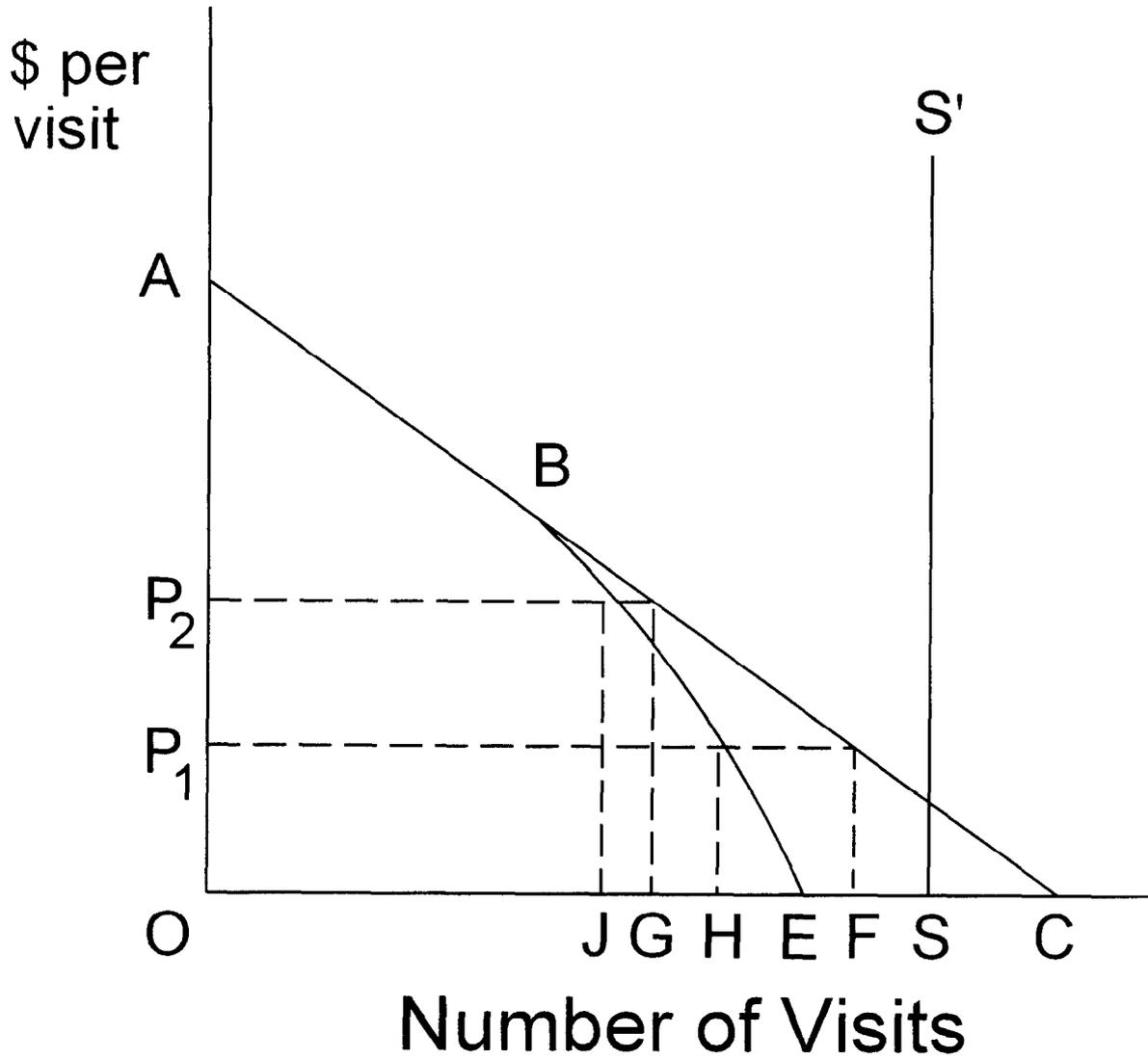
One flaw in this analysis is the assumption that the imposition of user charges can only decrease consumer utility. But since the revenues are not used for improving health services, they must be spent elsewhere in the economy, and consumers will gain or lose from these transactions depending on their patterns of health-related and non-health-related consumption.

Further, the assumption of fixed supply for each type of service seems unduly restrictive, because health ministries normally have some flexibility in allocating funds between programs. Such flexibility, of course, permits a higher level of benefit (individual or social) to be obtained from a given total amount of health ministry resources.

Musgrove's distinction between necessary and frivolous consumption may not be worded in the best possible way: hypochondriacs do not regard themselves, and are not always regarded by others, as behaving "frivolously." But the distinction does draw attention to the important fact that different forms of consumption generate different ratios of social to individual utility. For example, the ratio is high in the case of services generating positive externalities, and it is reasonable to think that such services would be highly valued in a government welfare function.

Exhibit 1

The Process of Optimization



These considerations and others lead us to propose an optimization model which departs from Musgrove's in the following respects:

As regards *institutional restrictions*, the total resources allocated to government health services are fixed, but their allocation between types of service (e.g. outpatient, inpatient) is determined by consumer demand.

As regards *maximands*, there are two of them: individual utility and social (or government) utility. Each type of utility is a function of the quantities consumed of the different types of health service, but the relative importance of the services differs between the two utility functions. For example, services with positive externalities possess relatively high weights in the social utility function. In other words, individual and social preferences for health services are not the same.

In Musgrove's model, changes in user charges or prices are the sole instrument available for achieving efficiency in the consumption of health services. Prices likewise play a role in our model, but in addition, changes in individual preferences emerge as an alternative route towards (social) efficiency. This means that this report might well be subtitled "getting prices and preferences right in the health sector." The model which seeks to achieve this goal is described in detail in the next section.

2.0 CONCEPTUAL FRAMEWORK

A socially efficient mix of government health services can be defined as that mix which maximizes a social utility function under conditions of resource constraints. The point is illustrated in Exhibit 2A. An economy with given resources and technology is assumed to produce three kinds of output: government-operated primary health services (including prevention), government-operated secondary (hospital-based) health services, and a composite representing all other goods and services (including private medicine, both modern and traditional, and various other commodities like food which have an effect on health status). With full employment and minimization of production costs (absence of X-inefficiency), output takes place on the production-possibility surface ABC.

A social utility function ranks different points on ABC in order of their social desirability. This function is assumed to give a positive value to objective measures of health status, such as life expectancy or freedom from morbidity. Tangency between the production-possibility surface and a social indifference surface generated by the social utility function indicates the socially efficient allocation of resources. This is point D in Exhibit 2A, implying EF of government primary services, EG of government secondary services, and EH of other goods and services.

The actual consumption of government health services will differ from the levels associated with this optimum because of six types of inefficiency:

2.1 SIX LEVELS OF INEFFICIENCY

2.1.1 Fiscal Inefficiency

The resources allocated to government health services may be held down by a combination of (a) a government policy of providing free or heavily subsidized health care, and (b) the failure of the government's budgetary process to reflect the social value of health services. The former feature is common in developing countries, almost all of which have adopted one variant or another of "socialized medicine," and the latter is allegedly becoming more serious in many places, as the fraction of the budget allocated to health continues to shrink.

Fiscal inefficiency—excessive budgetary stringency applied to government programs lacking any other significant source of funds—causes declines in health status and hence losses of social utility. In terms of Exhibit 2A, the effect of this kind of inefficiency is to shift the system from the social optimum at D to a combination such as M, involving fewer government health services and larger quantities of other goods and services. The system moves to a lower social indifference surface. (Further losses in social utility occur if the fiscal efficiency afflicting the government health sector is compounded by excessive government controls applied to the private sector. These controls, including discriminatory taxes, burdensome licensing procedures, and unreasonable restrictions on private medical practice, have the effect of reducing the health care component of the "other goods and services" consumed at M in Exhibit 2B. The analysis of such controls is important for policy purposes, but lies outside the scope of this paper.)

Exhibit 2A

Production-Possibilities Surface

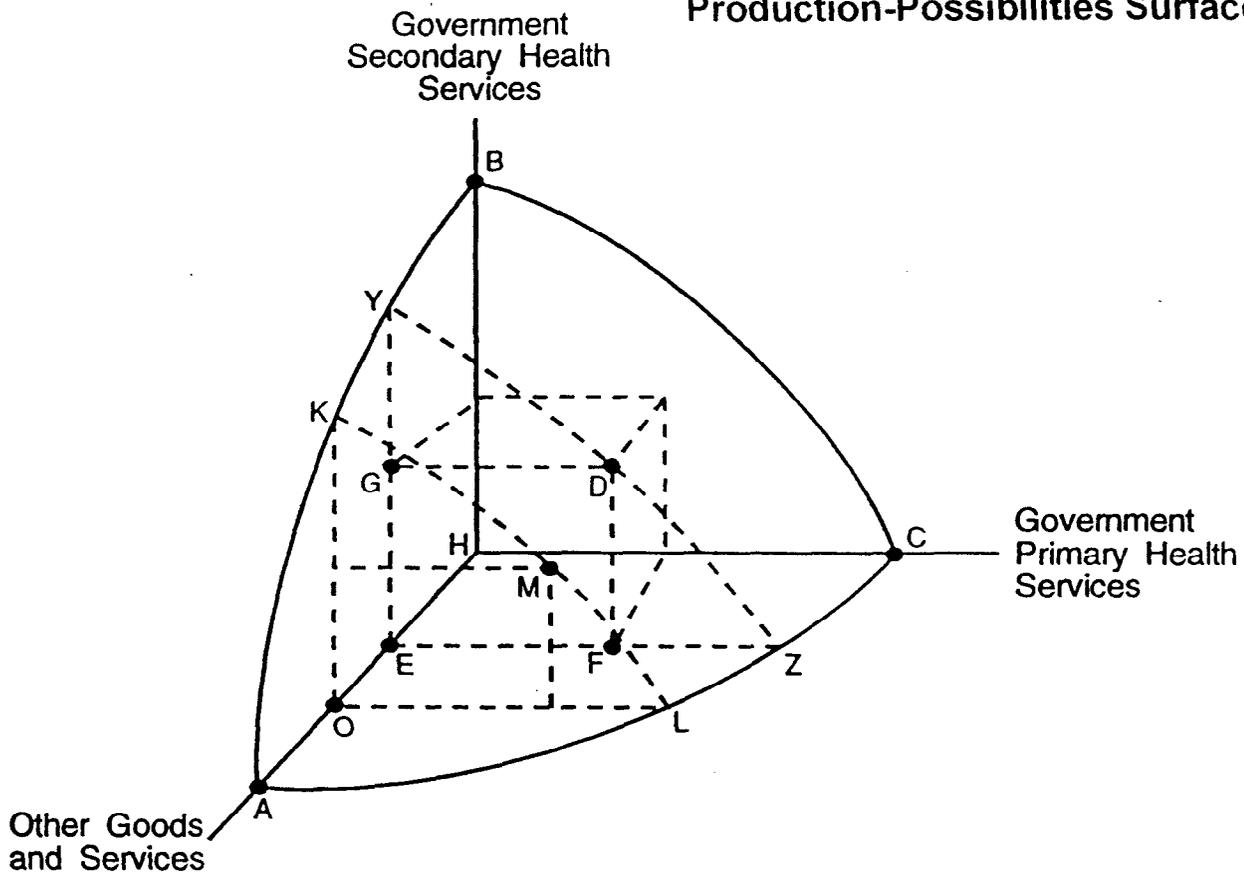
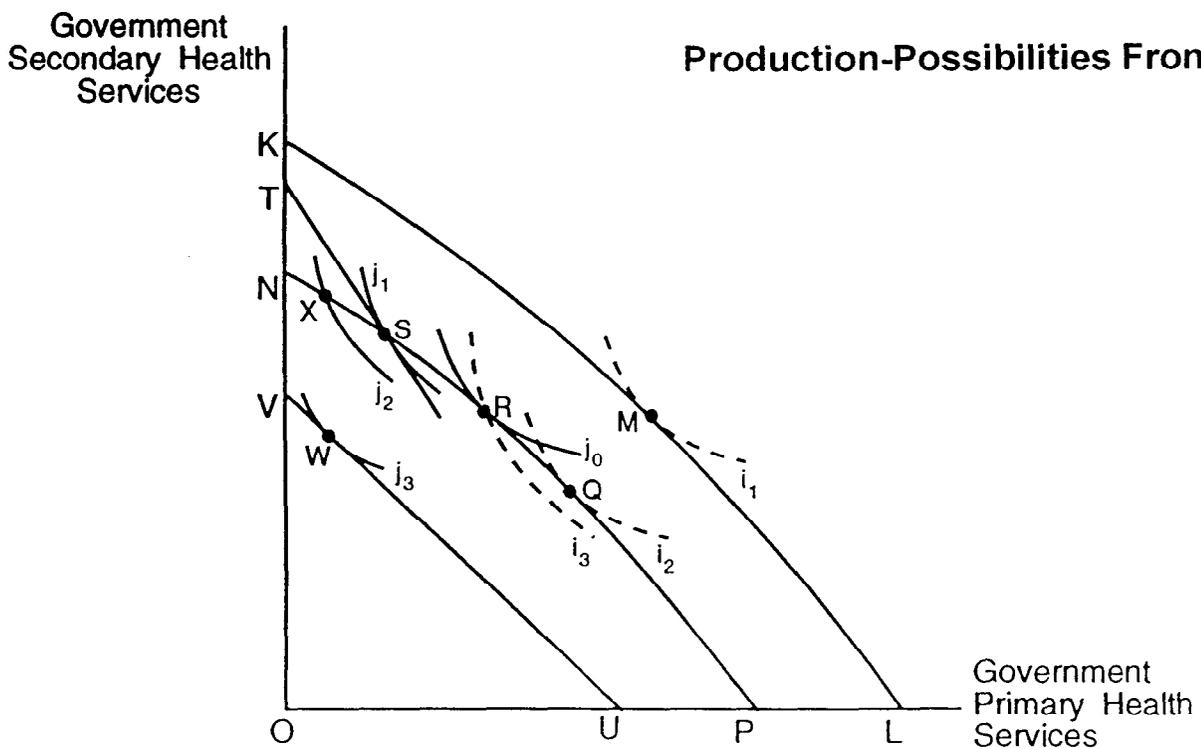


Exhibit 2B

Production-Possibilities Frontier



2.1.2 X-Inefficiency

The inferior outcome at M is shown in a two-dimensional diagram in Exhibit 2B, where only the economy's choices between government modern primary and secondary health services are depicted. The production-possibility curve KL represents the choices available when the resources put into the government health care sector—reduced by fiscal inefficiency—are used in a cost-minimizing way. This does not always happen. Through poor management, the personnel and other inputs available may be used wastefully. These problems, which have been termed "X-inefficiency," cause an inward shift of the production-possibility curve to NP. The best available combination from a social or health-status point of view is now at Q, involving a descent from the social indifference curve i_1 associated with M to the lower social indifference curve i_2 .

Each social indifference curve in Exhibit 2B, it might be added, can be viewed as indicating combinations of government health services yielding the same objective level of health status. Social utility is admittedly dependent on other factors besides health status. However, the analysis in Exhibit 2B assumes that the consumption of products other than government health services is held constant—at OH in Exhibit 2A. Hence it is reasonable to assume that the only cause of variation in social utility in Exhibit 2B is variation in health status, caused by variation in the mix of government health services consumed.

2.1.3 Divergences Between Private and Social Preferences

Consumers may fail to choose Q because of divergences between their preferences and the social preferences reflecting objective measures of the health status of the population as a whole. There are two main causes of such divergences:

- ▲ **Misinformation.** Consumers may have incorrect information about the effects of health services on their own levels of well-being.
- ▲ **Externalities.** Consumers may possess correct information, but in the absence of altruism, their decisions may ignore the positive externalities which their consumption confers on other members of society. An important example would be the consumption of products providing protection against transmissible diseases, like chemoprophylactics, vaccinations, or condoms. Such products are of less value to the direct consumers than to society as a whole, and hence tend to be underutilized.

The existence of divergences between private and social preferences means that, at any given combination of government health services, the marginal rate of private substitution between the services will differ from the marginal rate of social substitution. In terms of Exhibit 2B, if primary services are characterized by relatively high degrees of misinformation and positive externality, the social indifference curve passing through, say, point R will be steeper than the private indifference curve at the same point. For a given increase in secondary care, the decrease in primary care required to hold utility private constant will be smaller from a social standpoint than from a private standpoint.

With these configurations of individual and social indifference curves, the private optimum on NP will lie to the left of the social optimum. Consumers will consider themselves best off at R, the point of tangency with the private indifference curve j_0 . But this represents an even lower level of real health status—the social indifference curve i_3 .

2.1.4 Distortionary Pricing

Consumers will arrive at the point R if the ratio of the prices of the two services is the same as the ratio of their marginal costs ("the marginal rate of transformation," or the slope of the production-possibility curve NP). Distortionary pricing, defined here as a divergence between the two ratios, leads to an equilibrium at a point other than R. The prices in this context are understood to include not only the direct payments to providers (net of insurance reimbursements) but also the costs involved in traveling to seek care, waiting for care, and receiving treatment. (Note that by assumption the collection of user charges at the government health units has no effect on the position of the production-possibility curve NP. Any health unit revenues collected are used for financing non-health services. In the absence of user charges, the equilibrium on NP chosen by consumers is determined by other components of price [e.g., travel costs, waiting time].) If secondary services are relatively underpriced, the equilibrium will lie to the left of R—at a point like S, with tangency between a private indifference curve and the line (ST) describing the ratio between the two prices. At S, privately assessed welfare is reduced to the level associated with the indifference curve j_1 , and social welfare is also further diminished. It should be noted, however, that distortionary pricing could actually raise social utility if it produces opposite effects from those due to divergences between private and social preferences. For example, if misinformation produces a bias against primary services, the relative underpricing of primary services will produce better social results than will nondistortionary pricing. This is an example of the "theory of the second best."

A special kind of distortionary pricing occurs in the resource allocation situation assumed in the Musgrove model considered above. This is the case where no substitution between primary and secondary services is possible because the government has fixed the amount of each, say at point S in Exhibit 2B. In these circumstances it can be expected that prices will adjust so as to equate demands with the fixed supplies. If the adjustment does not occur as a result of changes in official user charges, it will occur as a result of changes in other components of total price, such as the time spent waiting in queues or the bribes paid to officials in return for being served.

2.1.5 Prohibitive Pricing

A further type of inefficiency, or loss of social utility, may arise if the prices of the two services are set so high that the consumer optimum lies inside the production-possibility curve. An example is shown in Exhibit 2B. Consumers are assumed to spend a target amount on health care. The prices of the health services are so prohibitive that this amount suffices to buy only OU of primary services or OV of secondary services, or combinations of the two

along VU. In these circumstances there is a further loss of both private and social utility, and some of the resources allocated to the health sector are unutilized. (The case of prohibitive pricing could perhaps be viewed as an example of distortionary pricing. We have defined distortionary pricing as inequalities in ratios of price to marginal cost. In the case of prohibitive pricing and excess capacity, marginal costs are zero and so the ratios are not defined. We have therefore preferred to treat prohibitive pricing as a separate cause of inefficiency.) Consumers would consider themselves best off, given the prices at point W on indifference curve, where both social and individual welfare is low.

2.1.6 Outside Influences on Choice

In some circumstances, consumers do not choose between alternative health services according to their own preferences. Their decisions may be influenced by outside agents. When the consumer is a child, it is obvious that the parents usually exert a dominant influence on choice. Even when the consumer of health services is an adult, outside influences are often important. It is well known that in the health sector, suppliers exert considerable control over demand. On health matters, the consumer may follow the advice of a health care provider (modern or traditional), even though this advice is contrary to the consumer's own preferences. Other influences on choice may be exerted by intrusive family members or neighbors. In these circumstances, consumers end up with a combination of services, like X in Exhibit 2B, which fails to achieve tangency between the price ratio (assumed to be indicated by the slope of TS) and a private indifference curve. Consumers lose an amount of private welfare indicated by the gap between the indifference curves j_1 and j_2 .

Why do consumers accept this loss of welfare instead of choosing the combination of services at S? There are at least two explanations. First, health providers may have sufficient control over the supply of services that the combination at S is simply not available to the consumer. For example, a given provider's authorization may be required for a surgical operation. Second, the consumer's private utility function may give some weight to maintaining good relations with the person exerting the influence.

Of course it is possible that the outside influences may push consumers in a direction which leads to a real health improvement. Like distortionary prices, outside influences can conceivably improve matters from a social point of view.

2.2 INEFFICIENCIES IN CONSUMPTION

The terminology proposed here might be challenged on a number of grounds. Some might prefer to call distortionary pricing a type of production inefficiency, since it is producers who are responsible for the setting of prices. Some might say that certain kinds of outside influence exerted by producers can also be regarded as a type of production inefficiency. Substantively, it does not matter how the six types of inefficiency are grouped: they are all responsible for some loss of health status. For what it is worth, the term "consumption inefficiency" has been used in earlier HFS Project documents to describe distortionary pricing. See, for example, Health Financing and Sustainability Project, "Applied Research Agenda, 1991 through 1994," May 1991, p. ii.)

This study is concerned with the last four types of inefficiency, those produced by divergences between private and social preferences, distortionary pricing, prohibitive pricing, and outside influences on choice. In terms of Exhibit 2B, we assume that the modern health sector is capable of producing services along NP, and we wish to understand why consumers end up at inferior points like R, S, W, or X instead of at the social optimum Q. Given the production-possibility curve NP, departures from Q can be termed "inefficiencies in consumption," and all imply that the real improvement in health status attained with the available resources is less than it could be. The other inefficiencies discussed above, which jointly cause a shift from point D in Exhibit 2A to point Q in Exhibit 2B, can be called "inefficiencies in production."

2.3 QUESTIONS RELATING TO INEFFICIENCY IN THE CONSUMPTION OF HEALTH SERVICES

With this framework, we can proceed to list the questions which must be answered before we can determine the degree of consumption inefficiency in a given health care system:

- ▲ What effects does misinformation have on the choices between alternative health services?
- ▲ Which health services generate significant externalities?
- ▲ To what extent is there distortionary pricing of alternative health services, in the sense of relative prices departing from relative marginal costs?
- ▲ Are prices sometimes prohibitively high, reducing demand so much that facilities are unused?
- ▲ How responsive is utilization to price?
- ▲ How widespread are outside influences on consumer choice in the area of health services? Do these influences raise or lower health status?
- ▲ To what extent is health status affected by changes in utilization, whether induced by changes in price, changes in knowledge, or by other means?

These questions will be answered in two ways. In Section 3.0, the existing literature on each of the questions will be reviewed. Following that, a formal model for assessing consumption inefficiency and its remedies will be developed, and simulations performed with hypothetical values assumed for the parameters of the model.

3.0 LITERATURE REVIEW

This section reviews the literature on each of the seven questions just posed relating to inefficiency in the consumption of health services. Most of the literature reviewed relates to developing countries. The articles cited below as well as other pertinent studies are summarized in the Appendix. Full bibliographic citations are listed at the end of the Appendix.

3.1 MISINFORMATION AND UTILIZATION

Many articles have documented the existence of widespread misunderstandings about the effects of given health services on the health status of the individual consumer and of the community. Kendall et al. (1984) report that mothers in Honduran villages were unwilling to use ORT for their children's diarrhea in cases where the cause of the ailment was believed to be "empacho," a folk diagnosis calling for a purgative. Ignorance about the causes and correct treatment of diarrhea is discussed by Eisemon et al. (1987) in relation to Kenya, by McKee (1987) in relation to Ecuador, and by Stapleton (1989) in relation to Nepal. Helitzer-Allen and Kendall (1992) report that rural women in Malawi were reluctant to take chloroquine as an anti-malarial prophylactic during pregnancy, because as a bitter-tasting medicine, it was regarded as dangerous for the fetus. Mull (1991) describes widespread misconceptions among Pakistani mothers about the causes and treatment of marasmus (serious malnutrition). Misconceptions in Kinshasa about AIDS—how it is transmitted and how it might be prevented—are described by Bertrand et al. (1991). Hielscher and Sommerfeld (1985) write about the beliefs in a Malian village concerning the causes of onchocerciasis: among the supposed causes are "tsetse flies, bad food, and dirty water." The negative effects of superstitions on health status are discussed by Sauerborn et al. (1989).

Foster (1991), Foster et al. (1990), Ugalde (1984), and Wolf-Gould et al. (1991) give several examples of the incorrect uses of drugs. Foster's paper describes how drugs in Sub-Saharan Africa are often taken because of their color, shape, or efficacy against similar diseases. He cites as illustrations how the contents of tetracycline and chlorophenicol capsules are emptied into infected eyes, or mixed in milk to counteract vomiting. Stanton and Clemens (1989) make the point that misinformation about health services is particularly rife among the poor.

As regards corrective measures against these problems, several authors urge greater effort in the area of health education, or education in general. It is pointed out, for example, by Eisemon et al. (1987) in relation to Kenya and by Wolf-Gould et al. (1991) in relation to Ghana that much misinformation results from illiteracy. Many consumers are unable to read the instructions accompanying drugs and other medical supplies. Some authors also suggest that low levels of education are associated with an undervaluation of primary health care in general, and of prevention in particular. An example of this argument is provided by Taylor (1988) in discussing the underutilization of primary health care services by American Indians.

3.2 EXTERNALITIES OF HEALTH SERVICES

A large number of health services, particularly those involving prevention and some other forms of primary care, generate positive externalities. In identifying such situations, the literature on epidemiological models is clearly relevant. These models are capable of establishing the relation between a defined intervention, such as a vaccination program, and the total number of disease cases prevented. Cases will be prevented both among the direct users of the intervention (persons vaccinated) and among other members of the population (persons not vaccinated but benefiting from the reduced probability of transmission). An example of the use of an epidemiological model in this context is provided by Makinen (1981), who estimates the total reduction in measles cases following a vaccination program in Cameroon.

If the consumption of preventive programs is to be encouraged because of their probable externalities, then it becomes important to identify the key determinants of that kind of consumption. Some studies of North American households, reviewed by Salkever (1976), have produced the interesting finding that the demand for preventive services tends to be higher among women than among men, and higher among the more educated than among the less educated, having controlled for such factors as income and insurance coverage. Some studies in developing countries have also found that women have a stronger demand for preventive services than do men (e.g., Tilney et al., 1992). If this is generally true, it could be expected that female education in developing countries would have desirable effects on the utilization of preventive services. This would occur partly because of the direct effect of education on demand, and partly because the education of women is likely to raise their status within the household and give them more say in decisions about health care consumption.

3.3 DISTORTIONARY PRICING

For the public systems of free medical care common in developing countries, it is reasonable to argue *a priori* that the pricing of the health services must be inefficient. In view of the large differences in marginal cost between services, setting all user charges equal to zero must introduce divergences between the marginal rates of substitution and transformation of those services—unless by coincidence the other elements in the total price (waiting time, etc.) happen to fall in the correct ratio. It should also be noted that the departures from marginal cost pricing in the realm of government health services cause further losses of utility (or "excess burdens") due to the effects of this pricing on resource allocation outside the government health sector. Such effects occur because of the substitutability and complementarity which exist between government health services and other goods and services in the economy. It is also unlikely that the divergences between the marginal rates will happen to provide the correct offsetting adjustments for misinformation and externalities.

Free medical care tends to be overutilized, especially when the non-fee elements in price, like waiting time, are relatively low. The phenomenon is much discussed in the literature. Huang (1988), for example, in writing about health facilities in a Chinese collective, describes how villagers often visited the clinic for insignificant problems, demanded expensive medicine for minor illnesses, and requested unnecessary hospitalization.

A further possible defect of free care is that a zero price may itself be a source of misinformation about the nature of the service in question. Observers such as Dutton et al. (1990) report a common feeling among consumers that if the government health service costs nothing, it cannot be worth very much.

It should be noted that a zero price—giving rise to problems of misallocation and misinformation—is present not only under systems of free care wholly financed by tax revenues, but also under many systems of contributory health insurance, which are becoming increasingly important in developing countries. Other institutional realities leading to zero charges, even when some positive charge is supposed to be levied, include the activities of government employees who steal drugs and other medical supplies for the benefit of themselves and their entourage. Examples from Cameroon are given by Van der Geest (1982).

At the other end of the scale, user charges set far above marginal cost tend to cause underutilization. These divergences are often due to the application of import taxes at high rates or to the imposition of high markups by state monopolies controlling the distribution of drugs or other medical supplies. Barlow (1991) describes a situation in Tanzania where taxes and markups put the retail prices of bednets—a product useful in preventing malaria—far beyond the reach of the average consumer. Gray et al. (1990) note a similar situation in Mali, where because of taxes and markups, the prices charged by the state pharmaceutical monopoly for the four principal drugs needed by a USAID-supported rural health project were substantially higher than what it cost the project to airfreight the drugs from the United States.

3.4 PROHIBITIVE PRICING

Cases of prohibitive pricing, where prices are so high that the available health services are not fully utilized, are frequently noted in the literature. Foster (1991) observes that the chloroquine offered for sale in a cost-recovery scheme in a malarial region of Malawi was priced beyond the reach of the local population, and the drugs eventually had to be given away before they deteriorated. In a study of rural health clinics in Bangladesh, Stanton and Clemens (1989) report that the number of monthly visits approximated one-half of the number that the clinics could have handled with their assigned resources. Examples of excess capacity in health centers of rural Java are given by Berman (1986).

3.5 RESPONSIVENESS OF UTILIZATION TO PRICE

Assessing inefficiencies in the consumption of health services requires information about the responsiveness of utilization to price. If, for example, the responsiveness is very low, this means that price distortions have little effect on the levels of either private or social utility derived from the consumption of health services. (Distortions in the prices charged for health services can of course have significant redistributive effects in the economy. A specific subgroup [e.g. low-income households] will suffer a decline in real income if it has a price-inelastic demand for a particular health service, if the price of the service is then increased, and if the extra revenues received by the government are not spent on programs benefiting the subgroup.)

Estimating the price-responsiveness of utilization involves estimating the own-price elasticity of demand of each type of health service and its cross-price elasticity with respect to the other types. Two main approaches have been used in estimating these elasticities. One has employed cross-sectional data for households who for one reason or another face different prices. The other has involved observing the effects of changes in health service pricing over time, such as those associated with cost-recovery measures.

It is difficult to generalize about the results of the cross-sectional studies because they have not employed identical models of consumer choice, and because they are subject in varying degrees to problems of measurement error and sampling bias. Some of the points which make comparison difficult are the following:

- ▲ Some studies assume a single-stage decision process, others a multiple-stage process. Some of the latter (e.g. Coffey, 1985) assume three stages: first, the consumer decides whether or not to seek care for a medical problem; second, the choice is made between alternative providers; third, the quantity of care to be obtained from the chosen provider is decided. The importance of the different determinants of demand, including price, can obviously be different at each stage.
- ▲ The price of care in some models includes only the fee charged by the health facility. In other models it also includes other money costs (e.g. travel expenses) and the value of time spent in obtaining treatment (travel time, waiting time at the clinic, etc.). In some studies the various components of price are treated as separate explanatory variables, often under the names of "money price" and "time price."
- ▲ The quality of a health service such as an outpatient visit can obviously vary from place to place. The problem of quality differences is treated by the various studies in various ways.
- ▲ There is great variation in the number of nonprice factors appearing in the demand functions. Several of these factors are of obvious importance. The study of health service consumers in Grenada by Poland et al. (1990) can be cited as an example where age and education—in addition to price—were found to be significant predictors of utilization. This means that the price-elasticities reported by the demand studies are more or less biased because of the omission of other important explanatory variables.

- ▲ The quality of the data used in the demand studies is often suspect. Data on utilization come from household surveys or facility surveys. A study for Grenada, where utilization data were collected from both sources, showed only weak correspondence between them (Hayes et al., 1990).

Thus a point made by Maynard (1979) in comparing the high price-elasticities reported for the early 1970s with the low values reported for the late 1970s seems generally applicable: much of the difference seems to be due to variations in the methods of estimation.

With this important caveat, the results of the cross-sectional demand studies can be summarized as follows:

- ▲ Where there is a single price variable (either the money price alone or the money and time prices combined), the own-price elasticities are generally low. Examples are provided for visits to physicians in Texas by Coffey (1985), for visits to nurses in Cote d'Ivoire by Dor and Van der Gaag (1988), and for both outpatient and inpatient services in Malaysia by Heller (1982). An exception to this rule is provided by the high own-price elasticity found by Dor and Van der Gaag (1988) for visits to doctors in Côte d'Ivoire.
- ▲ Where there are separate variables for money price and time price, the results are mixed. In a study of adult outpatient services in the Philippines, Akin et al. (1986) find that demand is inelastic with respect to both money price and time price. However, a study of child health services in the Philippines reveals demand to be elastic with respect to time price but inelastic with respect to money price (Akin et al., 1981). The opposite result—demand more responsive to money price than to time price—is reported by Bitran (1991) for rural households in Zaire.
- ▲ Instead of assuming that there is a single own-price elasticity of demand for a given health service, some studies have allowed the elasticity to vary between different groups of the population. For example, using data for Peru and Côte d'Ivoire, Gertler et al. (1988) find that lower-income groups tend to have higher own-price elasticities of demand. This finding is quite common in models allowing for variable own-price elasticities, according to the literature review contributed by Newhouse (1981). It implies that increases in user charges may cause considerable losses in utility among low-income groups.
- ▲ Cross-price elasticities between different types of health services have been estimated in many studies. The significantly positive values predicted by theory—on the grounds that the services are in large measure substitutes for each other—are frequently found. Examples occur in the studies by Akin et al. (1986), Coffey (1985), Dor and Van der Gaag (1988), Guilkey et al. (1989), Heller (1982), and Molyneaux and Diman (1991).

Turning from the cross-sectional approach to the time-series approach, we note that the phenomenon just described—the sensitivity of the demand for one type of service to the price of another—has also been found in studies which have looked at the consequences of cost-recovery measures. Bekele and Lewis (1986) observe that the raising of hospital fees in the Sudan diverted patient traffic to lower-level facilities.

The generally low own-price elasticities of demand found in the cross-sectional studies also appear in the time-series or "before and after" studies of cost recovery measures. Examples are provided by Bekele and Lewis in their Sudan study just cited, and by Lewis (1989), who observes that an increase in user fees at government clinics in Swaziland revealed the own-price elasticity of demand to be -0.32 . Some of the "before and after" studies have distinguished between short-term and long-term repercussions of price increases. Waddington and Enyimayew (1989, 1990) observe that fee increases in Ghana were immediately followed by significant declines in utilization, but that utilization eventually moved back towards its former levels. The same pattern is observed by Tilney et al. (1992) in The Gambia. In the Ghanaian case, utilization returned fully to its previous level in urban areas; in rural areas the recovery was only partial. This result confirms the cross-sectional finding that own-price elasticities of demand tend to be higher in low-income (i.e., rural) areas.

In time-series studies it is often difficult to disentangle the effect of the independent variable of primary interest from the effects of other factors occurring simultaneously. In the case of the "before and after" studies of cost recovery and utilization, a complicating factor often present is ongoing rapid inflation which reduces the real price of the health services. Thus in the Ghanaian and Gambian cases just cited, the eventual rises in utilization may reflect reductions in real price rather than true differences between short-term and long-term price-elasticities.

3.6 OUTSIDE INFLUENCES ON CHOICE

It is well recognized that the consumption of health services is strongly influenced by the opinions, advice, and instructions given by providers. This phenomenon has been formally modeled on several occasions, for example by Stoddard and Bare (1981). It can be assumed that in most cases, the influences exerted by the providers are beneficial, in the sense of leading to improvements in both private and social utility. But there are also many instances of bad advice noted in the literature. Hull et al. (1989) indicate in their study on Indonesia that many features of breastfeeding were poorly understood not only by mothers but also by the health care professionals counseling them.

The same problem is reported to exist in Jamaica by Cunningham and Segree (1990). Foster et al. (1990) observe that African health workers often provide incorrect treatment for malaria and diarrhea. Inappropriate diagnosis and treatment by Gambian health workers is discussed by Tilney et al. (1992). Hardon (1987) gives examples of misprescribing by doctors in a Filipino village: for a case of simple diarrhea, one doctor prescribed a drug to prevent vomiting, an anti-diarrheal, a multi-vitamin, and an analgesic. Another doctor prescribed chloramphenicol in a case of simple infant diarrhea. In Hardon's view this drug

damages bone marrow and causes anemia and should never be given to infants unless it is life saving.

Consumer choices about health care are often influenced not only by providers but also by relatives, neighbors, and friends. An attempt to quantify some of the latter influences is made by Akin et al. (1986). In their regression model explaining the demand for adult outpatient services in the Philippines, the authors include explanatory variables describing "the authority structure of the household." (It turns out in this case that the authority variables do not contribute much to the statistical explanation of demand.)

It can be assumed that in patriarchal households, the consumption of health services by women and children is subject to strong control by men, and that this control is more beneficial if the men are educated. These ideas receive some support from Ahluwalia et al. (1988), who report that the probability of children receiving EPI-recommended vaccines in a semi-urban district of Nepal were positively related to the educational level attained by their fathers. Even relatively well-educated fathers, however, were more likely to have their sons vaccinated than their daughters, so the outside influences on choice still left much to be desired.

An example of influence exerted by a relative outside the household is offered by Simmons et al. (1988). In a participant-observation study of a family planning program in rural Bangladesh, they tell of a woman in extreme poverty who had had fifteen pregnancies. She agreed that she should have no more, but was frightened of her brother, who had religious objections to family planning. He had already inflicted various spiritual and social punishments on a sister-in-law who had accepted an IUD.

3.7 UTILIZATION AND HEALTH STATUS

There is, of course, a rich literature on how the consumption of health services affects health status. One line of research has documented the existence of important effects; another school of thought remains rather skeptical about the benefits of many health services, believing health improvements to be mainly a function of socio-economic factors. These issues are often controversial. An example of a disputed case is the abrupt fall in mortality in Ceylon between 1946 and 1947. Frederiksen (1961) attributes the health improvement to better nutrition, while Newman (1965) credits the anti-malaria campaign.

Generalization about the relationship between health status and the utilization of health services is difficult, and it seems prudent to say that the nature of the relationship ought to be investigated anew for each type of utilization and for each national context under review.

4.0 A SIMULATION MODEL FOR ASSESSING CONSUMPTION INEFFICIENCY

In this section, the conceptual framework discussed in Section 2.0 is restated as a formal algebraic model. The model provides a methodology for measuring the degree of consumption inefficiency in a government health sector, in terms of aggregate losses of health status. The model also indicates what policy measures, such as price changes or informational campaigns, might reduce these losses. In this section, hypothetical values for the model's parameters are assumed, and simulations are performed to show the effects of alternative policy regimes on health status.

The purpose of this modeling exercise is to illustrate a theoretical procedure for estimating aggregate health losses. The actual estimation of the complete model for any specific region would require data collection efforts beyond the scope of the present activity. However, the model can lead to the formulation of some practical research efforts in the area of consumption efficiency, as well as being of some heuristic use.

4.1 HEALTH SERVICES MODEL

The equations of the model are shown in Exhibit 3. The first equation can be variously interpreted as a social utility function or as showing the determinants of health status. The complete social utility function is assumed to contain as arguments both health status and nonhealth variables. Health status is affected by the primary-secondary mix chosen in the government health sector, but the nonhealth variables in the social utility function are not affected by that choice: by assumption the choice does not affect the quantity of resources used outside the health sector. It follows that for the purposes of this exercise with a health-sector model, Equation 1, showing the relationship between health status and the primary-secondary mix, can be interpreted as showing changes in social utility. "Health status" in this context can be variously defined with mortality and morbidity variables (e.g., life expectancy at birth).

Like social utility, private utility (Equation 2) is a function of the quantities of primary services and secondary services consumed. But private utility is assumed to be more responsive to secondary services than to primary services on the grounds that the latter may be more subject to misinformation. The opposite is assumed for social utility on the grounds that primary services are more likely than secondary services to generate positive externalities. These assumptions are reflected in the hypothetical values used for the parameters a1 through a8. It should be stressed again that these parameter values are used only for illustrative purposes, and have not been produced by any empirical research.

The transformation function or production-possibility curve (Equation 3) shows the combinations of primary and secondary services that the health authorities can offer with their available budget. Parameter values are chosen to ensure increasing opportunity costs.

EXHIBIT 3

HEALTH SERVICES MODEL

EQUATIONS OF MODEL	INITIAL VALUES (Case 1)																																												
1. Social utility function $H = a1*Q1 \exp a2 + a3*Q2 \exp a4$	<table style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center;">PARAMETERS</th></tr> <tr><td style="text-align: right;">a1</td><td style="text-align: right;">1</td></tr> <tr><td style="text-align: right;">a2</td><td style="text-align: right;">0.5</td></tr> <tr><td style="text-align: right;">a3</td><td style="text-align: right;">1</td></tr> <tr><td style="text-align: right;">a4</td><td style="text-align: right;">0.3</td></tr> <tr><td style="text-align: right;">a5</td><td style="text-align: right;">2</td></tr> <tr><td style="text-align: right;">a6</td><td style="text-align: right;">0.4</td></tr> <tr><td style="text-align: right;">a7</td><td style="text-align: right;">1</td></tr> <tr><td style="text-align: right;">a8</td><td style="text-align: right;">0.5</td></tr> <tr><td style="text-align: right;">a9</td><td style="text-align: right;">0.5</td></tr> <tr><td style="text-align: right;">a10</td><td style="text-align: right;">1.5</td></tr> <tr><td style="text-align: right;">B</td><td style="text-align: right;">100</td></tr> <tr><td style="text-align: right;">P1</td><td style="text-align: right;">4</td></tr> <tr><td style="text-align: right;">P2</td><td style="text-align: right;">1</td></tr> <tr><th colspan="2" style="text-align: center;">DEPENDENT VARIABLES</th></tr> <tr><td style="text-align: right;">Q1</td><td style="text-align: right;">8.95</td></tr> <tr><td style="text-align: right;">Q2</td><td style="text-align: right;">86.61</td></tr> <tr><td style="text-align: right;">H</td><td style="text-align: right;">6.80</td></tr> <tr><td style="text-align: right;">U</td><td style="text-align: right;">14.11</td></tr> <tr><td style="text-align: right;">MRSS</td><td style="text-align: right;">-12.65</td></tr> <tr><td style="text-align: right;">MRPS</td><td style="text-align: right;">-4.00</td></tr> <tr><td style="text-align: right;">MRT</td><td style="text-align: right;">-2.24</td></tr> </table>	PARAMETERS		a1	1	a2	0.5	a3	1	a4	0.3	a5	2	a6	0.4	a7	1	a8	0.5	a9	0.5	a10	1.5	B	100	P1	4	P2	1	DEPENDENT VARIABLES		Q1	8.95	Q2	86.61	H	6.80	U	14.11	MRSS	-12.65	MRPS	-4.00	MRT	-2.24
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3. Transformation function $Q2 = B - a9*Q1 \exp a10$																																													
4. Marginal rate of social subst. (MRSS) $\frac{dH/dQ1}{dH/dQ2} = - \frac{a1*a2*Q1 \exp (a1-1)}{a3*a4*Q2 \exp (a4-1)}$																																													
5. Marginal rate of private subst. (MRPS) $\frac{dU/dQ1}{dU/dQ2} = - \frac{a5*a6*Q1 \exp (a6-1)}{a7*a8*Q2 \exp (a8-1)}$																																													
6. Marginal rate of transformation (MRT) $dQ2/dQ1 = -a9*a10*Q1 \exp (a10-1)$																																													
7. Private utility maximization $\frac{dU/dQ1}{dU/dQ2} = - \frac{P1}{P2}$																																													
8. Equilibrium quantities Q1 obtained by iteration ** $Q2 = B - a9*Q1 \exp a10$																																													
88 So as to equate MRPS & -(P1/P2).																																													
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Consumers are assumed to maximize private utility, which means that in all situations, the marginal rate of private substitution between the two services will equal the ratio of their prices (Equations 5 and 7). Given the existing prices (set by the government) and the budget, the model generates the equilibrium quantities of the services. The health status or social utility implied by these quantities may not be the maximum attainable. The maximum is only attained when there is equality between the marginal rates of social substitution and of transformation (Equations 4 and 6). The gap between the actual health status and the maximum attainable with given resources is what we are labeling "consumption inefficiency."

4.2 SIMULATIONS

In an initial simulation, the price ratio (P_1/P_2) is assumed to be 4, and the budget is 100. With the other parameter values as shown at the right-hand side of Exhibit 3, the model derives the quantities, utilities, and marginal rates. These are reproduced in the first column of Exhibit 4 (Case 1).

The first policy to be tested involves the removal of price distortion (Case 2 in Exhibit 4). The price ratio is changed so that it equals the ratio of marginal costs (i.e., the marginal rate of transformation). In the new equilibrium, the price ratio is reduced from 4 to 2.81. More primary services are consumed, and the removal of the distortion raises health status by 9 percent.

Next, an informational campaign is undertaken which has the effect of raising the private utility obtained from primary services (Case 3). The parameter a_5 , characterizing primary services in the private utility function, is raised from 2 to 3. The price ratio is moved back to its original level of 4. The campaign has the effect of raising the consumption of primary services by 67 percent (compared with Case 1), and health status is raised by 10 percent.

Case 4 shows what must be done in order to maximize health status, if price changes are the only available instrument. As noted above, the price ratio must be lowered sufficiently for the marginal rate of social substitution to equal the marginal rate of transformation. This is achieved when the price ratio falls to 1.31. There is a large substitution of primary for secondary services, and health status rises by 17 percent (compared with Case 1).

The price change implemented in Case 4 in fact achieves a greater improvement in health status than would occur with a major increase in government health expenditures unaccompanied by price reform. This point is made in Case 5, where the budget is raised from 100 to 150 but the price ratio stays at 4. Health status rises by 15 percent above the Case 1 level—a smaller increase than in Case 4.

EXHIBIT 4
SIMULATIONS WITH HEALTH SERVICES MODEL

	Case 1	Case 2	Case 3	Case 4	Case 5
Quantity of primary services (Q1)	8.95	14.05	14.91	26.02	12.40
Quantity of secondary services (Q2)	86.61	73.67	71.21	33.64	128.17
Price ratio (P1/P2)	4.00	2.81	4.00	1.31	4.00
Health status (H)	6.80	7.38	7.46	7.97	7.81
Private utility (U)	14.11	14.34	17.28	13.16	16.80
Marg. rate of social substitution (MRSS)	-12.65	-9.02	-8.55	-3.83	-14.14
Marg. rate of private substitution (MRPS)	-4.00	-2.81	-4.00	-1.31	-4.00
Marg. rate of transformation (MRT)	-2.24	-2.81	-2.90	-3.83	-2.64
Utility parameter for primary services (a5)	2	2	3	2	2
Health budget expressed as maximum quantity of secondary services (B)	100	100	100	100	150

Case 1: Base case - consumer misinformation, divergence between social and individual utility functions, and price distortion.

Case 2: Price distortion removed.

Case 3: Consumer information improved.

Case 4: Prices alone used to move toward social optimum.

Case 5: Government resource allocations to health increased by 50 percent.

4.3 REFINEMENTS TO THE SIMULATION MODEL

The model described above is very simple and would need to be developed in various directions in order to be a useful tool of policy analysis. Desirable refinements might include the following:

- ▲ **Disaggregation of the service categories.** For example, "primary services" could be divided into clinic-based curative activities, nutrition programs, sanitation programs, vaccinations, etc.
- ▲ **Disaggregation of consumer groups.** Instead of assuming that there is a single consuming population with uniform tastes, it may be desirable for reasons of social policy to distinguish between such groups as low-income and high-income, young and old, male and female, urban and rural, and so forth.
- ▲ **Linkages between prices and health budgets.** In the model presented above, it is implicitly assumed that the revenues collected by charging for health services are spent via the government's budgetary process on "other goods and services," (i.e., outside the government health sector). It would be desirable to allow for some fraction of the user charges to be earmarked for an expansion of the health services themselves—implying in terms of Exhibit 2A a shift of the production-possibility curve from KL towards YZ. The consequences of such earmarking in a model based on utility-maximizing behavior have been explored by Mwabu and Mwangi (1986).

5.0 A RESEARCH PROPOSAL

5.1 GENERAL DESIGN OF RESEARCH PROJECT

The objectives of the proposed research project are (1) to identify the degrees of consumption inefficiency characterizing selected government health services (i.e., their degrees of underconsumption or overconsumption), and (2) to propose policy interventions to correct these inefficiencies, such as price changes or health education programs.

The model presented in Sections 2.0 and 4.0 provides a framework for defining consumption inefficiency in a practical way. As indicated in Exhibit 4 (Column 4), the health status of the population is maximized when the marginal rate of social substitution between selected services equals their marginal rate of transformation. This implies that for each service, the ratio of marginal social utility (defined as an improvement in health status) to marginal cost is the same. (The marginal rate of social substitution between two services is the ratio of their marginal social utilities; their marginal rate of transformation is the ratio of their marginal costs.) In any actual system, the ratios for given services will differ because of inefficiency. Those services with high ratios are underconsumed and ought to be expanded; those with low ratios are overconsumed and ought to be contracted (always assuming resource constraints which restrict us to a given production-possibility surface).

Now the ratios in question are nothing other than the reciprocals of the (marginal) cost-effectiveness ratios of the services in question, if "effectiveness" is defined in terms of health improvement. A practical research project on consumption inefficiency therefore consists of estimating cost-effectiveness ratios for specified services. A ranking of the services by their cost-effectiveness ratios will separate the candidates for expansion (via price reduction, etc.) from the candidates for contraction.

For each service specified, it will then be necessary to obtain information on the following seven variables:

1. **Price.** What price do consumers presently pay for the service? The price includes not only the user charge (net of any insurance reimbursement) but also transport costs, waiting time at the health facility, etc.
2. **Marginal cost.** What is the cost of producing one more unit of the service? This figure should be obtained by valuing the inputs used in production at their shadow prices. It is particularly important to adjust the actual money prices of the inputs for elements of taxation or subsidization, which can seriously distort the true social cost of production.
3. **Demand elasticity.** How responsive is the demand for the service to the price of the service itself, and to the prices of substitute or complementary services?

4. **Externalities.** Does the service bring health benefits to others besides the direct users of the service?
5. **Misinformation.** Are consumers misinformed about the health benefits of the service?
6. **Outside influences.** Are consumers influenced in their choice of the service by providers or other individuals? Does this influence improve or worsen health status?
7. **Benefits of utilization.** By how much does utilization of the service raise health status?

To obtain this information, five sources will be useful:

1. **Ministry records.** Documents maintained by the Ministry of Health—particularly budgets, audits, and utilization tallies—will provide information relevant for estimating prices and marginal costs.
2. **Facilities survey.** The estimation of prices and marginal costs can also make use of data generated by a survey of hospitals, clinics, and other health facilities.
3. **Household survey.** A survey of households (or of clients at health facilities) can provide data useful in estimating prices, demand elasticity, the degree of misinformation, and the importance of outside influences.
4. **Expert panel.** With the use of techniques like Delphi interviewing, a panel of local experts in such fields as medicine, public health, and medical anthropology can provide information on all seven areas under examination.
5. **Literature review.** Likewise, a review of earlier empirical studies, particularly those pertaining to countries with socio-economic and health conditions similar to those of the country in question, can provide information on all seven areas.

5.2 CRITERIA FOR SITE SELECTION

The choice of a specific country for undertaking the research project should be based on the following criteria:

1. **Research climate.** Is the government supportive of scientific research which may involve household surveys and which uses some expatriate personnel?
2. **Data collection costs.** Are Ministry of Health data readily accessible and in usable form? Have there been recent household surveys or facilities surveys which could provide much of the information needed?
3. **Transferability.** Is the country similar enough to others in its region that lessons derived from the research project -- concerning either policy proposals or research techniques -- could be readily applied elsewhere?

4. **Potential for capacity-building.** Does the country already possess an indigenous research capacity sufficient for carrying out such work independently? If this capacity is lacking, the proposed project could make a useful contribution towards creating it.
5. **Program diversification.** Does a project in the proposed country promote the diversification objective of the Health Financing and Sustainability Project, namely the achievement of a desirable distribution of project activities across different countries?
6. **Language.** Is the language needed for field research such that the pool of qualified expatriate specialists would be severely limited? Evidently this criterion favors Anglophone countries.
7. **Contractor preferences.** Is the country located in a region preferred by one or more of the candidates under consideration as principal investigator?

Several countries have been reviewed in detail as possible sites for the proposed project: the Central African Republic, Egypt, The Gambia, Indonesia, Kenya, Niger, Nigeria, Senegal, and Tanzania. The application of the above criteria to these countries is discussed in memos by Holly Wong to Files, entitled "Potential Phase 2 MAR Activities on Efficiency in Consumption," Health Financing and Sustainability Project, Abt Associates, October and December 1992. The proposal emerging from this review of alternative sites is to undertake the project in The Gambia.

5.3 A PROPOSAL FOR RESEARCH IN THE GAMBIA

The Government of The Gambia is concerned to improve efficiency in resource allocation and for some years has been pursuing with donor assistance a program of structural adjustment with improved economic efficiency as a major objective. This program has been applied to the health sector in such forms as cost recovery measures. The government may therefore be receptive to applied research along the lines suggested here, namely, on how to get prices and private preferences right in the health sector.

Regarding the five types of information needed for such research, as presented above, a provisional assessment of the situation in The Gambia runs as follows:

1. **Ministry records.** The Epidemiology and Statistics Unit of the Ministry of Health, the Environment, Labor and Social Welfare (MOH) maintains good records on utilization and on prices and quantities of inputs.
2. **Facilities survey.** A recent study by Abt Associates (Tilney et al., 1992) generated data on the costs of drugs and on their allocation between government facilities.
3. **Household survey.** The Abt study also included a nationwide sample survey of 211 households, concerning the utilization of and payments for government health

services. The data from this survey could probably yield estimates of the own-price elasticities of demand for a number of different types of health service. There has also been a recent MOH-sponsored survey named "Health for All." Details on the latter are not immediately available to the author.

4. **Expert panel.** There would seem to be no serious obstacles in the way of setting up such a panel in the Gambia.
5. **Literature review.** The present paper has reviewed the extensive literature on consumption inefficiencies. Much of this literature pertains to West Africa.

The main gaps in the information already available on The Gambian health system seem to be in the areas of (a) the effects of utilization on the health status of the population, (b) prices and quantities of nondrug inputs, (c) consumer misinformation, and (d) adverse influences from providers and others. This last gap was also noted in the Abt study. Its authors commented that "inappropriate diagnostic and treatment practices in Ministry of Health (and most likely in other) facilities appear to be pervasive in The Gambia" and recommended that "a separate study needs to be undertaken on this issue" (Tilney et al., 1992).

It is proposed that Phase 2 of the Major Applied Research Activity in Consumption Efficiency start with the principal investigator visiting The Gambia to ascertain the nature of the data already available through the Epidemiology and Statistics Unit, the Health for All Survey, and other sources. On the basis of this reconnaissance, the investigator will formulate designs for additional surveys of facilities and households, should these appear necessary. The investigator will also make preliminary plans for an expert panel, which will be necessary under any scenario.

On returning from the reconnaissance visit, the investigator will submit a full-fledged Phase 2 proposal, including information on research designs, the qualifications of the specialists required, arrangements for collaboration with Gambian organizations, specification of deliverables, levels of effort, budget, and timing.

APPENDIX

LITERATURE REVIEW

**APPENDIX
LITERATURE REVIEW**

Abu-Zeid, H. A., & Dann, W. M. (1985). Health Services Utilization and Cost in Ismailia, Egypt. *Social Science and Medicine*, Vol. 21, no. 4, pp. 451-461.

TOPIC

A pilot study is undertaken to provide preliminary information on the pattern of utilization of health services and health expenditure in the Governorate of Ismailia.

METHODOLOGY

A stratified random sample of 89 households (576 individuals), along with five pharmacies, four primary health care units (PHCUs) and ten traditional health care workers (THWs) were selected and studied using personal interviews.

FINDINGS

The estimated average annual per capita public expenditure on health care was L.E. 9.2 (Egyptian L.E. = US \$ 1.25). The per capita cost of medication was double the cost of physician's fees. There is evidence that the PHCUs have not been utilized efficiently and there was some degree of dissatisfaction with their services. The households relied more on private physicians as their first contact for seeking help for health problems. The majority utilized traditional midwives for care of delivery despite the shortcomings in their training and supervision. Eighty percent of the mothers in the sample did not have any ante-natal care during pregnancy despite the availability of such care in the PHCUs.

POLICY RECOMMENDATIONS

Some approaches for increasing the efficiency and utilization of health services have been proposed. THWs should be officially recognized by health authorities, should be properly trained and supervised, and their services should be fully integrated with the community health care programs. The authors suggest that a more flexible system to compensate fairly physicians and staff of the PHCUs, as well as to allow reasonable chances for physicians to engage in private practice, needs to be established. They indicate that more sophisticated designs with larger sample size, techniques that maximize the reliability and the validity of information sought, should be used to further assess the utilization and cost for health services in Egypt.

Acton, J.P. (1975). **Nonmonetary Factors in the Demand for Medical Services: Some Empirical Evidence.** *Journal of Political Economy*, vol. 83, no. 3, pp. 595-614.

TOPIC

This paper considers the effects of travel distance in determining the demand of medical services in New York City. The author concentrates on mechanisms other than money prices that determine demand for medical care. He considers that with the decreasing relative importance of money prices, it is reasonable to expect an alternative mechanism to control demand. The author states that a mechanism involving time is quite likely to assume this role since medical care usually requires a payment in both travel time and waiting time.

METHODOLOGY

Acton develops a formal model of the demand for medical services that includes a payment in money and in time for private care, and then the predictions are tested on a cross-sectional survey of about 2,600 users of city hospital outpatient departments.

The demand for health care by type of provider is estimated from a simultaneous-equation system using two-stage least squares. Four structural equations are specified and 28 exogenous variables are used for the estimation. The model concentrates on the role of money prices, time prices, and earned and nonearned income. Assumptions are made to make money function as a price in determining the demand for medical services as well as to make time function as a price. This would produce negative own-time-price elasticities of demand and positive cross-time-price elasticities. The effects of a change in income are also considered in the model.

FINDINGS

The study supports the prediction that travel time (as measured by distance) functions as a price in determining the demand for medical services when free care is available. This survey of users of the municipal outpatient departments indicated negative own-price elasticities with respect to travel distance at free providers and positive cross-price elasticities for nonfree providers of care. The predicted negative effect of earned income on distance was not found, but persons with higher earned income were more likely to use the private sector, which was relatively less time intensive than the public sector.

POLICY RECOMMENDATIONS

There were two main policy implications for this study. A redistribution in services will be caused by change in money and time prices, and the possibility of using income supplementations rather than direct provision of goods. The author indicates the importance of alternative means for meeting the objective of increasing medical services consumed by target populations.

Adeyi, O. (1989). Rural Health Insurance in Thailand: A Case Study MAE NA Sub-District, Chiang Mai Province. *International Journal of Health Planning and Management*, vol. 4, pp. 311-318.

TOPIC

In 1983 the government of Thailand began a comprehensive national health insurance program, the HCP. The Health Card Project in Chiang Mai province is the pilot phase of this program. This paper reports on a study carried out in July 1988 on the factors associated with membership in the rural health insurance program in Mae Na, a sub-district of Chiang Mai. It also identifies feasible managerial interventions needed to improve management of the HCP and to improve service delivery in Mae Na.

METHODOLOGY

The study was carried out in six villages in Mae Na sub-district. Structured questionnaires were used to obtain data from a random sample of 100 health card holders (HCHs) and 100 non-health card holders (non-HCHs), and information on program management was obtained from discussions with those involved with the HCP at the village, sub-district, district, and provincial levels. Households were classified as "poor," "average," or "wealthy" according to scores which reflected specified material possessions and the status in the community of the household head.

FINDINGS

Possession of a health card, which comes in three types—families, individuals, and maternal and child health services—entitled the holder to free treatment for a specified number of illnesses per year at the Ministry of Public Health's (MOPH) facilities. Households purchased cards mainly because of expectations of free treatment, reduced waiting time at referral centers, and subsidized drugs. Funds from card sales were used for reimbursing service providers, for community development, and for soft loans to card holders. Eligibility for soft loans was not a major incentive for households to buy the health card. The family card was considered to give the most value for money, since it covered up to five persons. The study found that at a 5 percent level of significance (chi-squared test) there was no association between health card ownership and the socio-economic status of the households.

The HCP required adherence to strict referral processes. HCHs had to obtain referral letters from the health center in order to receive quick attention from the district hospital. The card holders were also promised quick services via a "green channel" in referral centers. But because the district hospital staff often did not observe the "green channel" privilege, many villagers preferred fee-charging private medical centers. This problem was the result of conflicts between the district hospital staff, who complained about unnecessary referrals from the health center, and the health center staff, who argued that the district hospital staff did not often recognize the rights of HCHs to preferential treatment.

Fifty-two of the respondents owned low income cards (LICs), issued to families judged unable to pay for medical care. But only 60 percent of the LICs belonged to "poor" households, while the rest belonged to "non-poor" households. Community leaders attributed this to the very loose criteria used to determine who was poor enough to receive the LIC. The LICs' impact on membership in the Health Card Programme was not clear.

POLICY RECOMMENDATIONS

Discussions with community leaders indicated that if the consumers did not perceive an improvement in the quality of service rendered by the MOPH's facilities, demand for the health card would drop in 1988-89. Therefore, the following steps were recommended for improving the management of HCP and improving service delivery in Mae Na:

1. Sell cards in the immediate post-harvest season, when incomes are highest during the year.
2. Discuss the "green channel" problems with hospital directors, and determine if this provision should be retained.
3. Authorize direct supervision of the issuing of LICs by the District Health Office.

Ahluwalia, I. B., Helgerson, S., & Bia, F.J. (1988). Immunization Coverage of Children in a Semi-Urban Village Panchayat in Nepal, 1985. *Social Science and Medicine*, vol. 26, no. 2, pp. 265-268.

TOPIC

This research project, funded by the Yale International Travel Fellowship, analyzed the immunization status of children three years or younger in the semi-urban village panchayat located outside of Kathmandu, Nepal. It also examined the attitudes, sources of health-related information, and use of health care services by mothers of these children.

METHODOLOGY

Twenty-five percent of 1000 households in the Panchayat were randomly selected to take part in an in-person interview survey conducted during June and July, 1985. The interviewers asked mothers in the selected households questions regarding the vaccination status of children in the household; the sources of the mothers' health-related information; and the places where health care services were obtained by the mothers.

FINDINGS

228 mothers ranging in age from 16 to 35 were interviewed about themselves and their 228 children (122 males and 106 females) ranging in age from three years down to one month. The interviews revealed the following information:

- ▲ 54 percent of the children had received at least one of the vaccines recommended by the Expanded Program on Immunization (EPI), i.e. measles, polio, diphtheria, tetanus, and BCG. Only 4 percent had received the entire immunization series appropriate for their age.
- ▲ Male children were two times more likely to receive at least one EPI recommended vaccine than female children. The mean number of vaccines received by male children was 2.12, compared to 1.39 for female children.
- ▲ Out of the children who had received at least one dose of a vaccine, there was no significant difference in the mean number of vaccines received by males (3.38) compared to females (3.06).
- ▲ 68 percent of children born in hospitals received at least one vaccination, compared to 52 percent of children born at home. Children born in the hospital were also 3.75 times more likely to have received more than four vaccinations than children born at home.
- ▲ 65 percent of children whose fathers had a high school or greater education had received at least one vaccination; 8 percent of these children had received the complete recommended immunization series. In contrast, 49 percent of children whose fathers had less formal education had been vaccinated at least once; 3 percent had received the full series. The educational status of the mother was not found to have any significant bearing on the level of immunization.

- ▲ Children whose mothers had received assistance during childbirth (from midwives, families, friends, etc.) were more likely to have been vaccinated than the children whose mothers self delivered.

Overall, only 4.4 percent of the children in the Panchayat had completed the doses of vaccines recommended by the EPI. Mothers indicated the low rate was due to a lack of adequate information about the time and date of arrival of the vaccinators, and the occasional failure of vaccinators to arrive. Most of the villagers were not aware of the timing of appropriate immunization delivery, and many complained about the vaccinators' objectionable and unfriendly attitudes.

The EPI vaccinators said that because of their busy immunization schedules, they did not have enough time to advertise their arrival and educate villagers about immunization. From the results of the study, it seems that the people who assisted in childbirths may have helped to educate the mothers about immunization.

POLICY RECOMMENDATIONS

The study proposed three main changes to the immunization system in Nepal:

1. The delivery and administration of vaccines should be organized in a way that allows village women to plan and comply with recommended schedules. Due to the women's busy schedules, timing of the visits is particularly important.
2. The EPI should better educate mothers about the purposes of the immunization program and should allow women to take part in its decision making more often.
3. The EPI should consider the benefits of obtaining assistance from indigenous village resources, such as traditional healers or school teachers, to educate mothers and vaccinate children. Such assistance has been extremely useful to family planning and other primary health care programs.

It was also suggested that the EPI could benefit from employing a traditional birth attendant to provide mothers with information on immunization and to serve as a liaison between the EPI program staff and the village women.

Airey, T. (1989). *The Impact of Road Construction on Hospital In-Patient Catchments in the Meru District of Kenya. Social Science and Medicine*, 29 (1) pp. 95-106.

TOPIC

This paper examines the effects of road improvements on in-patient catchments for two mission hospitals in Central Kenya. The impact of the road has been to shorten the road distance to the hospitals rather than improving geographical accessibility. Cost and cultural considerations remain the major barriers to availability of service.

METHODOLOGY

The author was involved in a socio-economic evaluation of the Thuchi-Nbuka road in 1986. In 1987 he returned to examine and analyze the patient records at the two hospitals, Nkuba (NK) and Chogoria (CH), most affected by the new road. A random-stratified sample was made of in-patient records for 1983, before the road improvements had affected either CH or NK, and for 1986, when the road was completed. At the same time, a random sample of current users was interviewed (127 in NK and 133 in CH).

FINDINGS

- ▲ Journey making on the road increased by 120 percent after the improvements. However, the implications for the increased accessibility of health services was ambiguous.
- ▲ The CH catchment area increased by more than a third; however, the number of patients coming a short distance has also marginally increased—thus the median distance travelled has changed only from 11 to 12 km.
- ▲ The NK catchment area has remained more or less the same; however more patients are coming from the outskirts of the area.
- ▲ Fare rates for public transportation have decreased due to increased competition for passengers on the new road; however lower fares have not made in-patients significantly more willing to overcome distance to reach the particular hospital, and thus changes in fare rates have failed to improve access for the more distant populations.
- ▲ CH Hospital, which is located in the middle of the length of the road, has felt more of an effect from the new road than NK, which is located at one end of the road.
- ▲ Institutional barriers seem to be constraining the success of the new road:

- ▲ The economic/financial cost of hospital treatment is still very high for most people. The hospitals in this study are fee-paying mission hospitals and the payment of in-patient fees (in 1986, 198 shillings just for room and board [average per in-patient stay]) is far more potent than the geographical barrier of travel costs.
- ▲ Local religious affiliations determine to a large extent which hospital a patient will choose: NK is Roman Catholic, while CH is Presbyterian. User choice breaks down clearly along religious lines: 77 percent of NK users were Catholic and 74 percent of CH users Presbyterian in 1986.
- ▲ Social structure and health policy are as important determinants of hospital utilization as geographical accessibility.

POLICY RECOMMENDATIONS

This study suggests that greater caution and understanding is needed in the tendency by transport and medical geographers to see road improvements as a simple remedy or "quick fix" to wider utilization of Third World health facilities.

Akin, J.S., Guilkey, D.K., & Popkin B.M. (1981). *The Demand for Child Health Services in the Philippines. Social Science and Medicine*, vol. 15C, pp. 249-257.

TOPIC

This study examines the patterns of usage of child health care provided for preschoolers by modern public, modern private, and traditional health practitioners as well as by self-treatment. The goal of the paper is to understand what types of acute medical care people use for preschoolers in The Philippines and to understand some of the factors which affect the choice of these medical care services.

METHODOLOGY

This article models a very specific type of behavior: the choice by households of the type of medical services to purchase for their children between the ages of 0 and 6 who have a perceived health need and who use medical or self-help services.

The data used for this study comes from The Bicol Multipurpose Survey (BMS) in 1978 conducted in the three main provinces of one of the two poorest regions in The Philippines. The BMS represents a multivisit household and community survey providing data for planning and evaluation for The Bicol River Basin Development Program. A simultaneous logit framework is used to study the determinants of choice among the four health service alternatives.

The BMS survey instruments were :

1. Household instruments
2. Community modules
3. Anthropometric measurements

FINDINGS

The results of the descriptive data and of the logit estimates indicate that for this sample and in this social and economic situation money costs are a minor factor, but waiting and distance costs strongly affect the relative demand for child health services. The results also indicate that more educated mothers tend to prefer modern private medical services. The results for value of time spent waiting are also largely consistent with the economic model.

As the waiting cost of modern private services went up, the use of each other service seemed to have increased. Consequently, it is suggested that public services are substituted for modern private services as the time cost of using the modern private option increases. The negative sign (own-price elasticities) for time cost on the use of traditional services is as expected in that it indicates that modern private services will tend to be substituted.

Lastly, one significant coefficient related to time cost for the modern public option indicates that when time cost increases, use of the self-treatment option tends to be reduced.

POLICY RECOMMENDATIONS

The authors indicate that relationships between medical care services must be considered much more carefully before guidelines for planning of maternal and child health care services can be laid out. They state that there is a great deal of interaction between uses of available health services which must be considered and that much greater concern must be given to including consideration of the traditional medical care sector in health planning.

Akin, J.S., Griffin, C.C., Guilkey, D., & Popkin, B. (1986). The Demand for Adult Outpatient Services in the Bicol Region of the Philippines. *Social Science and Medicine*, vol. 22, no. 3, pp. 321-328.

TOPIC

The absence of demand analysis for primary health care services has hampered efforts to finance these services and to make them permanent parts of the Third World medical systems. What is generally assumed is that governmental personnel and facilities should be provided free to clients, or for only a nominal charge. This paper introduces a demand model for adult outpatient services, describes the types of data required for estimating it, and presents the results of preliminary estimation using data from a poor rural region of the Philippines. The authors indicate that a full scale demand analysis will permit a description of the relationship between desired purchases of consumers and all factors affecting these demands.

METHODOLOGY

Two sets of data: a 1978 household survey conducted in one of poorest regions of the Philippines, the Bicol Multipurpose Survey, and a 1982 medical facility survey collected during visits to 518 traditional and modern facilities serving the 100 communities included in the 1978 survey.

The authors have developed a model under the assumption that a sick individual faces the choice of self-treatment as one alternative, and professional treatment from a traditional practitioner, a government clinic, or a private physician as another. The choice of practitioner depends on household constraints such as income, the number of residents, the authority structure of the household and its assets. The choice is also determined partially by the barriers to use, distance, time, and pecuniary costs. Other variables to account for the effects of education, sex, rural/urban residence, and practitioner supply on medical service use are included as well.

FINDINGS

The results indicate that prices and distance are not nearly as important as determinants of demand in this sample as has usually been assumed by planners. This indicates that the quantity demanded is fairly inelastic with respect to prices. They attest that some self-financing is probably feasible, and attention to the quality of public services may be more important to their use than a low money price.

Aniyam, C. (1987). *Availability, Accessibility, Acceptability, and Adaptability: Four Attributes of African Ethnomedicine. Social Science and Medicine*, 25 pp. 803-811.

TOPIC

This paper examines the concepts of accessibility, adaptability, availability, and acceptability as applied to ethno-medical systems in Africa. It draws attention to the need to revise the stereotypical picture of these attributes of ethnomedicine and its practitioners and to suggest research areas that should engage the attention of scholars interested in contemporary African indigenous medicine.

METHODOLOGY

The author reviews the existing literature which has contributed to the current knowledge of the above attributes of African ethno-medicine.

FINDINGS

Without adequate knowledge of available manpower in the indigenous medical care sector, the categorization of their level of expertise and specialization or current information on healers' activities, no effective plans concerning their role in national health care delivery systems can be formulated.

A distinction between potential locational accessibility and revealed accessibility must be made when considering the geographic distribution of indigenous healers. A skew is found to exist in the distribution of different types of healers, thus affecting accessibility to them. For instance, an herbalist may be easily accessible from the village in question whereas a bonesetter is located only at an extreme distance from the village.

The apparently satisfactory availability of ethno-medical practitioners compared with that of bio-medical services may be illusory, especially if the type and quality of services provided are not taken into consideration.

Fees charged by indigenous practitioners must also be taken into consideration. In some cases fees may be low or payable by services rendered in exchange, but some services cost large amounts of money. Due to high inflation in Africa, the supplies required by many healers have become very expensive, thus driving up the cost of services. In the Brong Ahafo area of Ghana it is reported that the cost differential between hospitals and local healers may not be significantly different as presumed by many people.

The increased cost of living in general has forced up the prices charged by many practitioners in order for them to survive in a more competitive market atmosphere.

Colonial disapproval of indigenous medical systems as well as the introduction of Christianity and Western forms of education have led to the breakdown of African traditional cosmology and culture. As a result, now that indigenous healers have begun to come back into favor as legitimate forms of health care delivery,

it is necessary for Western aid organizations to encourage governments to accept what they were formally pressured to reject.

In the western state of Nigeria, 88 percent of doctors stated that ethno- and bio-medical practitioners should work together in teams for treatment and research. However, 76 percent of these same doctors reported that they would not under any circumstances recommend a patient to a healer.

The willingness of indigenous medical practitioners to receive training from bio-medical personnel has been suggested as a signal for healers' preparedness to adapt to changing conditions. It has been noted that 81 percent of the 43 healers interviewed in Nigeria expressed readiness to undergo further training in bio-medical therapeutic methods.

POLICY RECOMMENDATIONS

The following research questions are recommended as further avenues of investigation:

1. Do existing levels of health care coverage by ethno-medical practitioners serve consumers efficiently?
2. Are the different specializations of practitioners available to consumers in areas where bio-medical facilities are scarce?
3. To what extent are the health needs of the population catered to by the practitioners?

Barlow, R. (1991). *Creating Incentives for Anti-Malarial Behavior*, in American Association for the Advancement of Science: *Malaria and Development in Africa: A Cross-Sectoral Approach*, Washington, DC, pp. 47-50.

TOPIC

This paper considers possibilities for using financial incentives and disincentives to encourage human behavior favorable to malaria control.

METHODOLOGY

The paper is a "think-piece" rather than a report on empirical research.

FINDINGS

The author notes that actual systems of financial incentives and disincentives applied by governments are often perverse in their effects on behavior relevant for malaria control. He cites as an example the fiscal treatment of bednets in Tanzania. Bednets, whether or not impregnated, tend to interrupt malaria transmission and hence generate positive externalities among the population. Their use therefore ought to be encouraged by subsidization, but in the case of Tanzania they are heavily taxed. "The cost per [imported] bednet unloaded at Dar es Salaam is currently US\$3-4. Customs duties and sales taxes are then imposed, and these, along with margins applied by distributors, lead to a retail price of about \$20. This price places the bednet beyond the reach of the mass of the population."

POLICY RECOMMENDATIONS

In the case of the bednets in Tanzania, the author suggests they be exempted from taxation. He adds that "probably another useful contribution by the government in this instance would be to promote competition in the distributive sector, in order to bring margins down."

Bastien, J. (1987). Cross Cultural Communication Between Doctors and Peasants in Bolivia. *Social Science and Medicine*, 24 (12) pp. 1109-1118.

TOPIC

This article focuses on the communication problems that exist between Bolivian doctors and rural peasants. The author and his colleague studied the issue and developed workshops for doctors and nurses to address this problem. The author presents alternative ways in which to explain the scientific etiology of disease which are compatible with traditional peasant beliefs.

METHODOLOGY

This paper is based on field work performed by the author and his colleagues, Oscar Velasco, M.D. and Angela Lutena, R.N., in Bolivia between 1981 and 1985. They conducted 12 workshops, each lasting three days, with doctors, nurses, pharmacists, CHWs, shamans, herbalists, midwives and others.

FINDINGS

Doctors and nurses in Bolivia are taught in medical school that Western medicine is superior to traditional medicine. The vast majority are ignorant of traditional medical practices. For example, in 1981 doctors wanted women to deliver their babies lying down instead of in the traditional squatting position. The doctors were trying to change medical practices without adequately understanding Andean peasant practice. The research team had doctors watch a midwife deliver a baby in the traditional manner (none of them had ever seen a midwife deliver a baby before). Because of this experience, the doctors discovered that women resist modern practices, such as brightly lit delivery rooms, for very tangible reasons; in this case because they believe that bright light hurts the baby's eyes. The primary lesson from this experience was not to try to change customs not essential to improving health. The motto was "Go with the Andean system and improve it." The doctors were encouraged to compromise and work with the existing traditional system in order to improve it.

Other problems developed because of Western innovations. For example, UNICEF furnished midwives with materials such as sterilized gloves and disinfected razor blades in shiny aluminum cases. After a year the cases had to be replaced by cloth backpacks because the Indians had interpreted the metal cases as attracting lightning, a dreaded deity and lethal charge in the highlands. Doctors then realized that the shiny aluminum and steel equipment in their clinics probably had a similar effect on peasants, providing a reason why there is such a low utilization of modern medical facilities by Andeans.

Workshop instruction included case studies where peasants first told their symptoms to a doctor and then to a shaman, both of whom attempted to cure them. The doctors had trouble understanding the peasants as few of them spoke Aymara or Quechua, the languages of the peasants. The doctors also considered vegetal and symbolic processes as ineffective and irrational, sort of a magic standing in the way of modern medicine. The author acted as a facilitator of dialogue between practitioners of both types of medicines

(traditional and Western). He provided anthropological explanations of the cultural assumptions for these practices. This type of mediation was well received by many of the practitioners, although one doctor cursed the workshop and walked out. His colleague later explained that the angry doctor's mother is the major distributor of herbal medicines and ritual paraphernalia for the people of the region. He illustrated the conflict that mestizo doctors face in having denied their ancestral medicine in accepting modern medicine.

The author decided on the etiology of diarrhea and the use of Oral Rehydration Therapy (ORT) as the focus of the workshops. He discovered that the peasants consider there to be several distinct types of diarrhea which require different types of treatment for cure. Problems have resulted because the Western practitioners were unaware of these categories of diarrhea. For example, the Bolivian Ministry of Health had issued posters in which they used the word for the minor unimportant type of diarrhea when they in fact wanted to refer to the deadly disease of dysentery. Health posts are only referred to in the case of one type of dysentery, and drugstores, home remedies and folk curers are more commonly used for diarrhea. Peasants believe that diarrhea is caused by many different things, including a person's emotional state, an imbalance of fluids in the body (they consider it to be a "wet" disease, caused by too much liquid in the body), wind and cold, or as punishment for failing to feed the earth shrines or participate properly in the community.

POLICY RECOMMENDATIONS

The author and his colleagues have developed a three-step methodology for improving communication between doctors and their Andean patients. Its objectives were to compare practices of modern with traditional medicine in regard to some disease, to analyze what is salubrious and deficient in each system's practice, to select one essential and appropriate item to change, and finally to design a lesson plan for convincing peasants to make this change. The goal of the lesson plan was to communicate the message according to basic Andean cognitive patterns, such as the components of their ethnophysiology. In this article the author gives the example of how participants altered a traditional Andean folk tale about an ill mountain god to include instruction of the use of ORT as the remedy the god is given for his illness.

Bekele, A. & Lewis. M.A. (1986). Financing Health Care in the Sudan: Some Recent Experiments in the Central Region. *International Journal of Health Planning and Management*, vol. 1, pp. 111-127.

TOPIC

Because health care expenditures contribute little to short-term economic performance or foreign exchange earnings, many developing nations facing financial crises have cut expenditures in this sector. This article focuses on a series of financial experiments in the Sudan, where both per capita health expenditures and the proportion of government expenditures in the health sector have decreased since 1971. Although the Sudanese government established a primary health care (PHC) delivery system in 1976, poor management and lack of resources has since undermined the effectiveness of PHC programs. In order to use existing resources more efficiently and raise revenue for the health sector, Sudan's Central Regional Ministry of Health initiated seven innovative experiments utilizing three basic methods: 1) user fees; 2) health taxes; and 3) cost and subsidy arrangements.

METHODOLOGY

The Regional Ministry of Health (RMOH) designed these experiments for the provinces of Gezira, White Nile, and Blue Nile; however, most of the programs were implemented in Wad Medani, the capital of Gezira. The article analyzes data collected in 1984 from financial records of the RMOH, hospitals, pharmacies and night clinics. Three out of 29 clinics and three out of twelve People's Pharmacies in the region were selected as representative samples of the facilities. The success of the experiments was measured by increases in revenue, shifts in incentives that improved labor productivity, improved access to health services, and reduced over-consumption of health services.

FINDINGS

The user fee program included hospital entrance fees for visitors and patients over 14, fees for upgraded hospital services, and a fee-for-service evening clinic program. In six out of the seven experiments, collection costs comprised a nominal percentage of gross revenue. Partly because of a highly inelastic demand of -0.13 for health care, hospital entrance fees generated the most revenue of any of the experiments while still encouraging the use of lower cost facilities. Fees for upgraded service raised additional revenue and improved the quality of available care, and the popular evening clinical services increased the supply of health care at affordable prices during convenient times for the employed. Evening clinics also provided health care workers with the incentive of earning extra income after normal business hours.

Raising the cost of bus service and entertainment added to revenue by generating LS200,000 a year. Another of RMOH's programs, the People's Pharmacies, increased the availability and quality of hospital drugs by allowing the private distribution of drugs subsidized by the central or regional government. Overall, the experiments described in this article generated a moderate sum of LS1,222,577 in net revenue, equivalent to 30 percent of the annual RMOH operating budget, excluding salaries and capital

expenditures. Appropriate incentives, sound management and clear objectives were central to the program's success. For example, when setting fees the RMOH consulted with local community leaders and set the fees well below those of the private sector, unlike the case of the Ashanti-Akim district in Ghana.

POLICY RECOMMENDATIONS

The experiments conducted in Sudan are applicable to other regions of the world on both larger and smaller scales. Constraints on efficient health care in developing countries include ignorance of costs, lack of appreciation for containing costs, and the inability of local government in many countries to adjust or retain tax earnings. The main factor leading to Sudan's success seems to have been the incentive system, which allowed local governments to raise taxes and granted the health sector the ability to retain and decide how to use the revenues it generated.

Beng-Xin, Li, He Chung-Hua, & Shen Fu-Min (1982). Childhood Immunization. *American Journal of Public Health*, 72, (9 SUPPL.), Sept. pp. 39-40.

TOPIC

This study discusses the planning process and schedule for various types of immunizations for children in Shanghai County. In particular, it analyzes the costs and benefits of the measles vaccination program.

METHODOLOGY

The level of immunizations in Shanghai County is based on the birth rate in a particular brigade plus 20 percent to allow for children who were not born in that brigade but are living there. The vaccination coverage rates are derived by dividing the number of children reported to have received the vaccine by the number who were estimated to need it. In this study, the coverage rates were supported by interviewing a sample of children at home and at school and by using mass reviews of brigades' immunization records.

FINDINGS

Children in Shanghai County receive five vaccines: Bacillus Calmette-Guerin, oral polio vaccine, DTP vaccine, live attenuated measles vaccine, and inactivated Japanese B encephalitis vaccine. With the exception of initial doses of DTP, in 1980 coverage rates indicated that immunizations were administered to well over 90 percent of the children. According to interviews and reviews of records, however, the actual coverage was 1.7-8.4 percent lower than initially reported.

The cost-benefit analysis of measles immunization shows that the benefits greatly outweigh the costs. On average, a patient with measles stayed in the hospital for seven days at a cost of Y2.5 (at that time Y1=US\$0.60) per day. Because a family member generally remained with the patient, this added to the cost by Y1.5 per day. From these figures, the total cost of a case of measles is estimated to be approximately Y28. The study calculates that more than 102,000 cases of measles have been averted since the vaccine's introduction in 1966, saving nearly Y3 million. This savings exceeds the cost of the vaccination program, Y150,000, by approximately 20:1.

POLICY RECOMMENDATIONS

The study concludes that immunization programs have achieved a high rate of success in Shanghai County. No further changes are proposed.

Berman, P. (1986). Cost Analysis as a Management Tool for Improving the Efficiency of Primary Care: Some Examples from Java. *International Journal of Health Planning and Management* 1, pp. 275-288.

TOPIC

This paper presents several examples from health centers and sub-centers in rural Java, Indonesia, showing how inefficiencies in staffing patterns, personnel management, and drug management affect cost-efficiency.

METHODOLOGY

The author outlines a series of criteria by which he measures cost and efficiency. He examines factors which determine the level of average costs, including the cost of fixed inputs (e.g., buildings and personnel; the costs and use of variable inputs; drugs and supplies; the level and type of utilization; and the overall management of resources in service delivery).

FINDINGS

The author examines two examples in detail.

Example One compares the cost efficiency of two health centers (HC1 and HC2), both similarly staffed and responsible for the health care of similar numbers and types of people (approx. 50,000 people are located in each catchment area). Each center works from an identical drug list and neither has reported a shortage of drugs.

Despite the similarity in resources, HC2 had average costs more than double those of HC1. The primary difference between the centers lies in the fact that utilization of HC1 was much higher than that of HC2: HC1 reported 170 percent more curative care contacts and 350 percent more Maternal and Child Health/Family Planning (MCH/FP) contacts than HC2. The higher costs of HC2 appear to stem from the fact that HC2 was giving, on average, 60 percent more drugs (in value) than HC1 for curative care, and about 64 percent more for MCH/FP, despite the fact that reviews of patient diagnoses for the two units showed that they were quite similar.

The author comments that HC1 might be too conservative in its use of drugs for fear that supplies might run out, given the high utilization of the center; or that HC2 might be too liberal in its distribution of drugs, given that they are in ample supply and utilization of the center is low. The analysis also reveals that both centers give excessive numbers of different drugs but inadequate amounts of each drug given. The large difference in utilization suggests that the management of HC2 is certainly not using its resources well, since the same number of staff are treating only one-third the number of patients as HC1. Ironically, it is noted that both the centers are underutilized.

Example Two compares three sub-centers, two of which (SC1 and SC3) are similar in number of staff assigned to curative care and the third unit (SC2) having twice the personnel of the other two.

The smaller units are each staffed with one paramedic, whereas the larger unit has two curative care nurses and a midwife.

Average and total costs were much higher in the large unit (the cost per contact at SC2 was about 70 percent higher than at the two smaller units), utilization was similar, and drug costs per patient were lower. This suggests that the inefficiency is linked to the structure of the larger unit. The potential utilization of services at small peripheral sub-centers may not be sufficient to justify two full-time nurses providing curative care.

POLICY RECOMMENDATIONS

The question is raised as to how much authority management personnel at the local level has regarding the improvement of these conditions. The author suggests that their authority may in fact be quite limited and thus calls for a re-examination of policy and practice at higher levels.

It is also noted that lower costs do not necessarily indicate more effective service. While management should seek to reduce costs, this should be done with reference to standards of adequate quality of care.

Bertrand, J. T., Makani, B., Hassig, S., Niwembo, K.L., Djunghu, B., Muanda, M., & Chirhamolekwa, C. (1991). AIDS-Related Knowledge, Sexual Behavior, and Condom Use Among Men and Women in Kinshasa, Zaire. *American Journal of Public Health*, 81, no. 1, Jan. pp. 53-58.

TOPIC

This study was conducted in 1988 in Kinshasa, Zaire, to measure adults' awareness of AIDS, its modes of transmission and means of prevention; coital frequency and extramarital sexual relations; knowledge and use of condoms; perceived risk of getting AIDS; and attitudes toward HIV testing.

METHODOLOGY

In order to collect data for this survey, interviews of adult men and women took place from January to September 1988. A total of 6,625 respondents (3,140 men, 3,485 women) randomly selected from the 24 administrative zones of Kinshasa took part in the study. The male/female data constitutes independent samples, not husbands and wives. Because the projected sample for this survey consisted of 1,500 men (ages 20-59 years) and 1,500 women (ages 15-49 years) the results of survey have been weighted to adjust for oversampling. Interviewers used a pretested, structured questionnaire, and conducted their interviews in Lingala, the local language.

FINDINGS

Serosurveys of selected populations in Kinshasa estimate that 6-8 percent of its adult population are seropositive. In 1988, 50 percent of the admissions to the internal medicine ward of the major public hospital, Mama Yemo, were HIV seropositive. An estimated 80-90 percent of these AIDS cases were transmitted through sexual contact (mainly heterosexual). Results of this study's survey revealed that 99 percent of men and 96 percent of women in Kinshasa were aware of AIDS. The data also revealed the following detailed information:

- ▲ Only 50 percent of the respondents knew that mosquitoes do not transmit AIDS.
- ▲ Only 70 percent knew that AIDS is not contracted through casual contact.
- ▲ 36 percent of men and 45 percent of women believed a vaccine against HIV existed.
- ▲ 40 percent of men and 21 percent of women believed a person with AIDS could be cured.
- ▲ One-half of all respondents knew at least one person who had died of AIDS.

Since 1987, AIDS messages have appeared on radio, television, and in a song by Luambo, a popular singer in Zaire. Around 90 percent of men and 83 percent of women have heard the radio messages and Luambo song; 86 percent of men and 70 percent of women have seen AIDS messages on T.V.; and lower percentages of both groups have seen published material on AIDS.

Over 90 percent of married and single men, 77 percent of married women, and 61 percent of single women had heard of condoms; however, relatively few of the respondents had ever used them. Eight percent of men and seven percent of women reported current condom use with their spouse. Less than 2 percent of either sex used them "always" or "most of the time." The most important factors married people considered when using condoms were first, to prevent pregnancy, second, to prevent sexually transmitted diseases in general, and third, to prevent AIDS. Compared to married men and women, singles placed relatively more emphasis on prevention of other STDs and AIDS and less on pregnancy prevention.

Twenty-three percent of married men and one percent of married women reported having had an extramarital partner or partners in the past six months. Men who acknowledged extramarital sex had more misconceptions regarding modes of HIV transmissions, had heard more AIDS messages than those denying extramarital involvement, were more likely to cite condoms as a prevention method for AIDS, to perceive themselves to be a "very high" or "high" risk of AIDS, and to have known someone who had died of AIDS. Men and women engaging in extramarital relations reported condom usage rates of 24 percent (male) and 12 percent (female). Twenty-seven percent of unmarried men reported that they used condoms 27 percent of the time. Out of those that used condoms, one half of both the unmarried men and men with extramarital partners reported using condoms "always" or "most of the time."

Although relatively few men reported having used condoms, over 52 percent believed that condoms tear easily during sexual relations, that they can stay in the vagina after sex, and that they diminish sexual pleasure. Between 30 and 40 percent of women also held these attitudes. It is also evident that despite the nearly universal awareness of AIDS among the population, 47 percent of men and 63 percent of women believed that they were at no risk of contracting the virus. Moreover, although most people in Kinshasa knew that having multiple sex partners increased the probability of getting AIDS, 74 percent of men involved in extramarital relationships felt that they were at little or no risk of AIDS. This study regards much of this attitude as denial regarding AIDS risks.

POLICY RECOMMENDATIONS

Based on the results of this survey, the authors of this study provided several recommendations.

1. Greater efforts are needed to combat the misconceptions that AIDS can be transmitted by casual contact and by mosquitoes.
2. Information, education, and communication should emphasize the idea that the two main means of protection from AIDS are mutual fidelity within couples or use of condoms.
3. Condom promotions should include messages to counteract the negative attitudes towards condoms.
4. Information campaigns should emphasize that there is no effective vaccine against AIDS and that the disease is fatal.
5. Since by the age of 17 half of males and females have engaged in sexual relations, education campaigns should be directed to both teens and adults.

Bitran Dicowsky R.A. (1991). *Health Care Demand in Developing Countries: A Model of Household Demand and a Market Simulation Model of Health Care Financing*, Doctoral Dissertation. Boston University Graduate School. Boston.

TOPIC

The author presents a review of selected studies of health care demand done in the U.S.A. and abroad. The review focuses on the theoretical and empirical issues involved in modeling and estimating the demand for curative health care. The author also identifies research areas that have received little attention in the literature on health care demand as well as issues that give rise to methodological debate. A theoretical model of household health care demand is developed.

METHODOLOGY

A review of the literature on health care demand, with an emphasis on the developing country setting, is presented. The predictions of the theoretical model are outlined, and a reduced form of the structural model is estimated empirically using field data collected by the author in rural Zaire. A stratified multi-stage design was used. Nineteen villages were selected, and households were randomly drawn into the sample. The survey was intended to provide household-level and person-level estimates.

The model's framework arises in the context of a household when one of its members experiences an illness or injury. The model assumed that demand decisions are made under uncertainty that arises from people's limited information about health and health care. The variables that affect curative health care demand are classified into first, those that affect the probability of occurrence of health outcomes, such as perceived severity of the problem, assumed ability to recover, and the treatment option's perceived ability to affect the patient's health status; and second, those that affect household utility such as the number of household members, their age, gender, and economic role.

Descriptive statistics and patterns of utilization are presented along with empirical specification of the structural model. The author also describes the variables included in the structural model and proceeds with an estimation of a discrete choice model of health care demand.

FINDINGS

The empirical findings from the estimation of a reduced form of the model support some of the model's predictions. Variables believed to affect the probability of occurrence of health outcomes are found to be important determinants of demand. Individual characteristics, such as age and gender, are also important determinants of demand. Demand is found to be highly sensitive to treatment price but not sensitive to treatment, travel and waiting time. This latter finding is hypothesized to be due to the low economic value of people's time relative to the price of treatment. Women's demand is considerably more price sensitive than men's.

Empirical results from the demand model are used to develop a market-level model of the supply and demand for health services in

a developing country setting. The model is used to simulate the effects on demand and provider finances of alternative pricing strategies including cross-subsidization according to levels of household income.

POLICY RECOMMENDATIONS

The results obtained regarding people's revealed quality preferences illustrate how a health care delivery system for poor populations, that relies almost exclusively on user fees, can function and provide services that are superior to those of private alternatives. Lastly, the author recommends caution with regard to expanding or modifying the model. It should be, however, useful to estimate the model with other data sets, or conduct additional studies which may provide more information that may help test a wider set of predictions and hypotheses arising from the current model.

Crovano, K. (1991). **More Than Mothers and Whores: Redefining the AIDS Prevention Needs of Women.** *International Journal of Health Services*, 21 (1), pp. 131-142.

TOPIC

This article examines the focus of international AIDS prevention programs for women. It emphasizes the fact that prevention programs are limited in the types of women for whom they are appropriate, and that this bias subsequently prevents many women from accessing the programs.

METHODOLOGY

This article is based on a survey of an international array of articles dealing with the issue of women and AIDS.

FINDINGS

AIDS prevention programs for women are based on changing the attitudes and behavior of women at risk for the HIV virus; however they do not necessarily take into consideration the lack of power that women have in relationships with their male partners. The author cites an example from Peru, in which a woman recounts that she cannot see well because after she broke her glasses, her husband stated that she was " 'so stupid that he would never buy [her] another pair of glasses.' So just imagine this woman asking her husband to use a condom or consider having non-penetrative sex."

Prevention programs primarily target sex workers and women who already have children, and do not offer acceptable options for women who have yet to start bearing children or wish to continue doing so. These women are encouraged to use condoms, which necessarily prevent conception, and therefore pregnancy. For women who live in cultures where a woman's worth is based upon her ability to reproduce, the use of condoms is clearly an inappropriate option.

The author states, "As long as there is no valid role for women who choose not to parent children, measures to prevent HIV infection that negate the importance of that role will only have limited impact. To provide women exclusively with HIV prevention methods that contradict most societies' fertility norms is to provide many women with no options at all."

Sex workers are encouraged to use condoms with their commercial clients, but often do not use them with their primary (non-commercial) partners—"Approaches that negate the mother, and lover, in the whore have not been and will not be effective in preventing the further spread of HIV to women."

Many HIV positive women choose to bear children despite the virus. In Port-au-Prince, Haiti, a study found that pregnancies were as common among HIV-infected women as among a control group of uninfected women. In Kinshasa, Zaire, a survey conducted among 58 HIV infected women documented that 71 percent wanted more children within the next two years and 5 percent were already pregnant.

Examples such as these negate the viability of advice that HIV positive women forego childbearing.

POLICY RECOMMENDATIONS

Establish clinics which can service HIV positive women *and* their children—"If a woman has to travel to two separate clinics to receive care for herself and her child, the woman's health can be expected to suffer. Women have traditionally given priority to their children's health care needs over their own, and there is no evidence that AIDS has changed this pattern."

Efforts to prevent the spread of AIDS to women must focus on empowerment which will require both social reform and technical support.

The "risk group" approach tends to deny the multiple factors that place women at risk of contracting HIV and to ignore the complexity of implementing change in many women's lives. To ensure this understanding, the women being targeted must be involved at every stage of policy and program development."

Carrin, G. (1987). *Community Financing of Drugs in Sub-Saharan Africa. International Journal of Health Planning and Management*, 2, pp. 125-145.

TOPIC

This article focuses on community financing of drugs in Sub-Saharan Africa, in part because drug expenditures often constitute the largest percentage of public health expenditures. This type of financing system often increases efficiency in the usage of public and private resources, helps control spending on imported modern drugs, increases the availability of drugs at the local level, and leads to further community participation in the financing of other health services. Also discussed are additional and alternative resources in the Sub-Saharan region, different countries' experiences with drug financing schemes, and three main community financing methods: direct payment for drugs, fee-for-service, and health insurance.

METHODOLOGY

Information for this article was obtained from reviews of health care financing of more than 100 primary health care projects (Stinson, 1982), and summaries of drug financing schemes in Pahou (Benin), Niger, Kasongo (Zaire) and the Sudan.

FINDINGS

Although the public sector in Sub-Saharan Africa is larger, relative to GNP, than in other low-income and lower middle-income countries, the average shares of public health expenditures in GNP are only 0.95 percent for low-income and 1.9 percent for lower middle income Sub-Saharan Africa. This is partly because public health programs face a general budget constraint on public expenditure and must compete with other budget items. Raising taxes may help to solve the budget problem, as in the case of Senegal, where 8 percent of rural taxes were allocated towards health in two of its regions. But levying taxes requires a bureaucratic capacity not always present in low-income countries, and once taxes are levied, revenue will not necessarily be allocated to the health sector. Foreign aid provides another resource; however, many countries have problems financing recurrent costs once a project has been implemented. National health insurance is an additional option, but difficult challenges in this type of program include organizing an efficient administration, assessing the capacity of households to pay, and determining affordable premiums.

Community financing of health care may be preferable to the programs listed above. While the study acknowledges that different types of programs may be used in conjunction with each other, it identifies community financing's two distinct advantages: 1) local control of revenues creates an incentive for health workers; and 2) community financing can better meet demands of the local population. This paper supports community financing, and in particular community drug financing, as a short-run solution for countries which lack the administrative capabilities to support larger-scale schemes such as nation-wide cost recovery. It is recognized that community financing may create inequalities between communities.

Of all the community drug financing projects reviewed, only the Sine Saloum Rural Health Projects did not abolish, or at least significantly reduce, the rationing of drug supplies. Under Pikine's (Senegal) new fee-for-service plan, health units were formed serving 12 blocks each with about 25,000 inhabitants. As a result, the average coverage rate of the population rose from 5 to 60 percent, reaching a 90 percent coverage rate in certain blocks. In Sudan, the Ministry of Health supported various health care cost-recovery schemes as a way to increase revenue to pay for the recurrent costs for health care investments funded by foreign aid.

Out of 20 community financing schemes, 14 used the method of direct payment for drugs, five used service fees, and one used a prepayment or insurance scheme. The projects in Borgou (Benin) and Fatick (Senegal) used a combination of both prepayment and additional charges for services and drugs. Health committees in the Kasongo Project in Zaire felt that asking for prepayment would be a "psychological error" in the case of families. In the Pahou (Benin) project, delegates of participating villages said they preferred payments per episode of illness, because many people could not afford the required prepayment, especially during periods of drought. They also feared that health care facilities would not deliver promised services. Shortages of cash, especially as a result of bad harvests, also inhibited the success of Kenya's prepayment systems in Tiriki, South Kabras, and Bokoli. Senegal's project attempted to correct this type of cash problem by collecting premiums just after harvest. Another factor which contributed to the unpopularity of prepayment was the existence of family solidarity as a substitute for formal health insurance arrangements. In a survey regarding social security and the family in Egypt, it was found that household heads not covered by insurance programs held a stronger perception of family relations and obligations than households covered by insurance.

Despite the aversion towards prepayment schemes, an advantage of these types of schemes is the implied risk-sharing between the sick and the healthy. Prepayment systems usually can better cover the risks than extended families in paying for costly treatments. In addition, if membership in the scheme is compulsory, prepayment systems can overcome the problem of adverse selection. All of the projects, with the exception of Gott (Senegal), dealt with the moral hazard problem by charging drug and/or service fees which served the same function as coinsurance and/or deductibles. None of the projects attempted to promote equity by setting premiums according to the household incomes of patients. Because information was unavailable about premiums and household incomes in the project areas, this study did not analyze the issues of ability to pay and equity.

A problem with fee-for-service schemes is that because fees are charged per consultation or per episode of illness, health personnel may have the incentive to underutilize on drugs or withhold prescriptions. For example, in the Sine-Saloum project (Senegal), health workers drew off their salaries from receipts before making sure that drug supplies would be adequate. A comprehensive accounting system prevented this same situation from occurring in the Pikine project (Senegal). Fees must also be set at moderate levels if the poor are to have access to care. The Pikine project differentiated fees according to the age of the patient, charged low fees for consultation by pregnant women and

for a delivery, and delivered free care to certain categories of people. In the Sine-Saloum region, lower fees for follow-up visits decreased the financial burden on poor patients requiring lengthy treatments. A benefit of such fee-for-service systems is that they include a form of risk-sharing among the ill.

In direct payment schemes, it has been shown that many people are able and willing to pay for prescribed drugs. If drug costs are low, these schemes may also be equitable. In the case of the Jikejem Baptist Health Center Project (Cameroon), sliding scales were set up to take account of patients' wealth. Sudan's central region has offered subsidies to hold prices low. There was not enough information on the other 12 direct payment schemes to judge levels of equity achieved.

POLICY RECOMMENDATIONS

At present, user charges account for only 2 to 6 percent of recurrent health expenditures in Sub-Saharan Africa. This paper offers three recommendations to consider when implementing future drug financing schemes:

1. The population to be covered by the financing scheme must be involved in establishing the scheme. In particular, perceptions of the population concerning the following topics must be taken into consideration: trustworthiness of the management of the scheme, willingness to pay for drugs and health care in general, willingness to pay in advance, and level of equity.
2. Knowledge of accounting and management of revenues is necessary in financing schemes. Fee-for-service schemes also require the ability to cost the inputs in the operation of a health center; and prepayment schemes require actuarial knowledge.
3. Before policy advice concerning optimum financing schemes is formulated, detailed information about the above recommendations must be collected and analyzed.

Chernichovsky, D., & Meesok, O.A. (1982). Utilization of Health Services in Indonesia. *Social Science and Medicine*, 23, no. 6, pp. 611-620.

TOPIC

This paper examines the utilization patterns of traditional and modern health services in Indonesia, giving particular attention to the relative contribution of the availability of services compared to that of household characteristics, its level of income in particular.

METHODOLOGY

The data used in this study are from the National Socio-economic Survey conducted by the Central Bureau of Statistics in Indonesia in 1978 and the Village Social Facilities Survey conducted in 1976 and 1977. Household monthly expenditure is the basic welfare indicator used in this study. From these data, the authors indicate that the utilization of health services of different kinds depends, on the one hand, on households' willingness to pay as well as attitudes, and, on the other hand, on the relative availability of various services. In this regard, the authors investigate the respective contributions of different individual, household, and pertinent community characteristics to the utilization of various health services. Correlates of utilization patterns were computed and estimated regression coefficients concerning the type of medical care sought were calculated.

FINDINGS

The data strongly suggest that low household income is a barrier to the utilization of modern primary medical services, even where they are publicly provided; the relatively well-to-do spend more on, and are using more heavily, the services of trained practitioners and physicians. The results stress the effect of household wealth on the use of services. Public facilities made a difference, where they were available. People preferred them to the indigenous practitioners. The authors acknowledge that the nature of the data and method of estimation did not allow a strict quantitative comparison of the effects of household income and availability of services.

POLICY RECOMMENDATIONS

From a policy perspective, the authors indicate that the provision of modern health services is a necessary but not sufficient condition for an equitable access to these services by the population. They conclude by stating that while it is true that the poor are prepared to pay for the services of traditional practitioners, low-cost public services may be the best way of introducing modern medical care to the poor and uneducated.

Coffey, R. M. (1985). The Effect of Time Price on the Demand for Medical Services. *The Journal of Human Resources*, 23, no. 3, pp. 185-196.

TOPIC

The purpose of this paper is to report on a study, including primary data collection, that was designed especially to develop improved time price measures and investigate their effect on the demand for medical services. Time prices are tested in a more complete model of medical care demand decisions than is usually used in health services demand studies.

The theoretical basis for medical care demand studies that incorporate time is Becker's theory of consumer behavior. Becker's theory views consumption as a process of utility maximization that requires inputs of goods and time to produce outputs-sources of utility. This theory has been applied to health and medical care most rigorously by Grossman (1972) and Phelps (1980).

METHODOLOGY

This paper analyzes the effect of time price on medical care demand and describes use of a reservation wage question from a household survey (The Women's Community Health Care Survey conducted in Dallas County, Texas, 1977) to develop a measure of time price for obtaining medical care. A comprehensive three equation model of the demand for female medical care services examines choice of provider, entry demand, and the demand for physician visits.

FINDINGS

- ▲ The time price of medical care demand (travel time, waiting, and treatment time valued at an individual's reservation or market wage) negatively affects the probability of using medical care system during a year. The effect is small: a 10 percent increase in the time required to obtain care leads to about a 1 percent decline in the probability of seeking care.
- ▲ The time price does not affect the number of visits demanded in a year. Generally, the entry and visits demand equations are influenced more by health problems than economic variables.
- ▲ In contrast, the provider-choice decision is almost exclusively influenced by economic variables (time and money prices, income, distance, eligibility for no-fee care), and in the expected directions.
- ▲ The importance of the time and money price to the choice of provider decision supports the hypothesis that medical care price effects are not independent of unmeasured factors in the error term of demand equations and, thus, provider choice should be held constant to derive an unbiased estimate of the time and money price effects in demand equations.

- ▲ It is necessary to include the time price of alternative activities in demand equations to obtain an unbiased measure of the effects of the time price of the activity in question.

POLICY RECOMMENDATIONS

None provided.

Crandon, L. (1983). *Grass Roots, Herbs, Promoters and Prevention: A Re-Evaluation of Contemporary International Health Care Planning. The Bolivian Case. Social Science and Medicine*, 17 (17), pp. 1281-1289.

TOPIC

This article examines the USAID/Montero health improvement project which was pilot tested in Bolivia from 1975 until 1980, when it was "de-obligated" because the US suspended economic aid to Bolivia following a political coup. In particular the author focuses on the implications of the institutionalization of the ideology and concepts (such as community participation) which were used as a basis for the project.

METHODOLOGY

This paper is based on the author's data collected during the two years she spent doing research in a Bolivian village. She also cites a variety of literature concerning the USAID/Montero project, as well as the project design itself.

FINDINGS

The pilot project was based on four major themes: 1) community participation through health care committees and an elected or otherwise community-selected promoter; 2) a referral system from the health post of the promoter to the center with an auxiliary nurse midwife, to secondary and tertiary care hospitals with physicians; 3) an emphasis on preventative medicine, and 4) the use of traditional medicine along with other therapy by the promoter. The author points out that these themes are considered to be part of the "correct" approach to increasing rural community involvement in the health care system, but that in the Bolivian case, each theme was in fact fraught with problems:

Community: In Bolivia there are many different types of communities formed out of the country's many class and ethnic groupings. The USAID definition of "community" was based on a governmental form of community, one in which hierarchy, or differential access to economic and political resources, defines all other social relations (frequently referred to as patron/client relations). The use of this definition in the project led to conflict between Indian communities and the mestizo population (which tends to have higher social and economic status). The author cites the example of an Indian man who went to the university to become a doctor; when he returned to the village to practice, he exploited and abused the other Indians as a measure of his new status. She states that, "the multiple interests of [this type of man] ...work against each other to prevent the very cooperation envisioned by these health care programs."

Referral system: The rural villagers saw that within the program hierarchy in the referral system, data information flowed only from the "community" unit to the ministry, and economic resources and decision-making power worked only from the national level down. For instance, the villagers were not involved in the evaluation or even the data collection

processes, and thus the 'community' had no political leverage or say in how the program operated or met its needs.

Exploitation by the Bolivian elite and the government was widely perceived by the peasants. Some examples of this include 1) the fact that all materials used for the project were required to be purchased from the United States, which meant that supplies were extremely expensive and took a long time to arrive in the rural areas; 2) a perception that the majority of USAID funds went to support the higher levels of the Bolivian medical bureaucracy and not to the peasants; 3) that the program was designed for an urban as opposed to a rurally based population.

Preventive medicine: Because preventive medicine is seen as being promoted by the lowest member of the health hierarchy, it loses its significance and takes on the image of uselessness and lowly esteemed resources. For many peasants the health promoter is the lackey of the elite interest group that opposes exactly what USAID was hoping to promote—grass roots organizations.

Incorporating indigenous medicine: Indigenous medicine is seen as a bridge between indigenous and scientific medicine, and thus is encouraged at only the promoter level. Auxiliary nurses and physicians are not expected to learn about it. In addition, health care programs extract only what curative elements make sense in terms of Western medicine and which are compatible with the Western medical tradition in the operation in the health project.

In contrast to the Western system, the indigenous system mobilizes the Indian community socially (the patient, following treatment, is expected to reciprocate in some manner at a later date) and economically (financial resources are gathered throughout the community by way of social ties in order to pay for traditional treatment). The Western system has paid little if any attention to these matters.

An example: An Indian man fell ill and was taken to a physician. The doctor spoke to the man's family in a different manner than that with which he spoke to mestizos, and the family interpreted this as an indication that he considered them inferior. He did not explain his diagnosis, which they interpreted as another indication of his low opinion of them. He then chastised them for not bringing the sick man in earlier and said it would now cost much more to treat him and would not be as effective; the family interpreted this as his admission of a plan to exploit and abuse them.

The family left the clinic and took the sick man to a traditional healer who treated (and cured) him with a wide variety of methods, including the use of herbs, the eating of dog flesh, and the application of a barley based plaster on the man's feet. The author notes that there was nothing in this traditional cure that USAID would have incorporated into the indigenous medical program, with the possible exception of the herbs.

POLICY RECOMMENDATIONS

Hierarchical referral systems and bureaucracies should be eliminated from program design. Central planning proved in this case to be a hindrance rather than an asset. We should pay attention to the fact that we inherently lack respect for the non-Western, the non-scientific. We lack consideration of native ideologies and native social relations, and it can be argued that our programs often remain inherently ethnocentric.

Cunningham, W., and Segree, W. (1990). Breast Feeding in an Urban and a Rural Jamaican Hospital. *Social Science and Medicine*, 30 (3), pp. 341-348.

TOPIC

The government of Jamaica has committed itself to increasing the number of Jamaican mothers who breast feed their infants. This article examines the rates of new mothers who breast feed, at an urban hospital where breast feeding is actively promoted, and at a rural health clinic where no promotion takes place. It looks in particular at the behavior of health professionals with regard to breast feeding.

METHODOLOGY

Structured interviews were administered to 113 mothers of infants age 0-6 months at one urban hospital (n=62) and one rural hospital (n=51), regarding 1) physician and nurse practices known to affect breast feeding, 2) mothers' own breast feeding practices, and 3) mothers' knowledge of breast feeding issues. Physician and nurse visits were also directly observed to confirm survey responses and assess the resources devoted to teaching mothers about breast feeding.

FINDINGS

The urban hospital was staffed with physicians in many fields of specialization whereas the rural hospital had only three midwives and one public health nurse (no physician).

The urban hospital conducted formal antenatal lectures for mothers, in which breast feeding recommendations were at least 4-6 months of exclusive breast feeding followed by diet supplementation. Mothers were then seen by a doctor or nurse, but during the 63 physician visits observed, there were only eight references to breast feeding and all eight were inquiries about breast pain rather than advice about breast feeding or breast care. The rural hospital has no formal lecture to mothers, although encouragement to breast feed and instructions on nutrition and breast preparation were routinely given during antenatal visits.

At the antenatal clinic, 75 percent of mothers received advice about breast feeding at the urban hospital as opposed to 56 percent of mothers at the rural hospital; on the maternity ward of the urban hospital, 46 percent of mothers received breast feeding advice compared with 4 percent of mothers at the rural hospital.

There was no difference in the knowledge of practical breast feeding information between mothers at the urban and rural hospitals. Mothers knowledge of the nutritional superiority of breast milk compared to formula was particularly low (7 percent).

Only 13 percent of mothers in the urban hospital were allowed to initiate breast feeding in the recommended one hour after delivery as compared to 45 percent of rural mothers. This was ascribed to differences in the division of labor at the two hospitals. At the urban hospital the delivery nurse was responsible for immediate post-partum care, but the giving of the infant to its mother in the post-partum ward was the responsibility

of the post-partum nurse. This arrangement caused a delay between the two events. In the rural hospital, the delivery nurses were responsible for both delivery and post-partum care, and therefore no lag time developed between the events.

Infant formula was available free at the urban hospital with its distribution controlled by the nurse. Seventy-five percent of mothers reported feeding their infants some formula while in the urban hospital. There was no formula routinely available in the rural hospital and therefore all infants were breast fed.

At a postnatal clinic at the urban hospital there was no lecture or other information distributed on breast feeding; however the method of feeding was noted on nurses' charts (30 percent of mothers reported exclusive breast feeding and 70 percent a combination of breast feeding and formula). The rural postnatal clinic did not deal with the issue of breast feeding at all.

Conclusions:

1. The preponderant role of knowledge for improved breast feeding practices is called into question--more education may not translate into higher breast feeding rates.
2. The roles of different health professions, especially regarding the division of their labor, may be a structural factor discouraging breast feeding.
3. Hospital practices that encourage breast feeding were found more often at the rural hospital where there were fewer resources.

POLICY RECOMMENDATIONS

Structural changes in hospital routines might lead to better results than the launching of a new educational plan.

Providing a supportive environment for the early initiation of exclusive breast feeding by hospitals and health professionals may be more feasible and effective than providing extensive educational materials.

Cutts, F., Soares, A.V., Jecque, J., Kortbeek, S. & Colombo, S. (1990). The Use of Evaluation to Improve the Expanded Program of Immunization in Mozambique. *Bulletin of the World Health Organization*, 68 (2), pp. 199-208.

TOPIC

This paper evaluates the Expanded Program of Immunization (EPI) which modified immunization strategies from 1985 to 1987 in Mozambique. The following aspects are analyzed: immunization coverage and how to increase it; vaccine efficacy; and the impact of the program on the target diseases.

METHODOLOGY

Routine data on the number of vaccinations performed on children aged 0-11 provided estimates of the annual immunization coverage. In order to examine the determinants of vaccination and to assess community attitudes towards vaccination, the researchers conducted surveys in urban and rural areas of Inhambane Province in 1987. Field tests were also conducted in selected cities to estimate measles vaccine efficacy. Finally, in order to gather statistics on morbidity and mortality, researchers examined reports from health centers, used the EPI cluster survey for Quelimane city, reviewed hospital registers, and the like.

FINDINGS

Following the introduction of EPI's accelerated immunization program in 1986, the coverage for measles rose 86 percent in Maputo, an increase from 70 percent in 1983. During this time, consumers increased their demand for other vaccines as well; however, vaccination remained incomplete. Small outbreaks of measles occurred in Maputo, the capital, in 1985-6 and 1987. Measles epidemics still occurred at yearly intervals in cities such as Nampula, where the vaccination coverage was estimated at 55-70 percent. In 1985, the estimated incidence of and mortality rate for measles was 129 per 1000 and 11 per 1000, respectively, for children under five years of age. With the increased coverage, few cases of poliomyelitis and neonatal tetanus have occurred.

The main reasons for incomplete vaccination were as follows: the availability of vaccination services at health centers less than three days per week; ineffective vaccination; and missed immunization opportunities. For example, in Inhambane city, the children near centers where vaccines were provided only once a week had a relative risk of 8.5 of incomplete vaccination compared with those whose nearest health center vaccinated more than three days per week. From the surveys, it was also found that an average of 8 percent of children who were not fully immunized had still had their growth recorded at a health facility at least four times. Thirteen percent of the mothers in urban areas said they had been turned away at least once from an immunization session. A group of supervisors identified some additional reasons for missed opportunities: vaccination sessions not available every day at health centers; cold chain failures; poor stock control; absence of staff from health centers because they were sick or were conducting outreach visits; reluctance to open a vial of vaccine for only one or two children; failure to vaccinate sick children; and confusion about vaccination schedules.

POLICY RECOMMENDATIONS

When conducting the surveys, health workers were shown the need to work with the society. For instance, the survey results in Inhambane indicated the need to target mobilization activities to high risk groups such as recent immigrants, mothers who deliver at home, non-Portuguese speakers.

Deferranti, D. (1985). *Paying for Health Services in Developing Countries, and Overview*. World Bank Staff Working Papers. Working Paper No. 721. The World Bank, Washington, DC.

TOPIC

This paper presents an overview of the principal issues, problems, and policy options in financing health services in developing countries. The shortcomings of existing policies, which finance health care to a significant extent from public revenue sources, are reviewed. Alternative approaches are identified and examined with particular attention to:

1. Opportunities for greater cost recovery from users, through fees for services and/or fees for health care "coverage";
2. The potential role of risk-sharing arrangements, which can range from large, formal insurance plans to small, informal community-based cooperatives;
3. The public/private mix in both providing and financing care, and
4. The structuring of subsidies and their incentive effects.

METHODOLOGY

This is not a household survey, but it provides a list of issues to consider when policies involving user charges are examined. Questions relate to the notions of ability to pay, willingness to pay, and how would households respond to increased user charges. The list includes questions regarding the supply of services and how it would be affected; there are also questions concerning reasons for not increasing charges. Lastly, some issues regarding the net benefits for governments from assigning high priority to developing and implementing new policies are discussed.

FINDINGS

The conclusion argues that present policies need to be substantially reoriented in many countries. The conventional and still growing faith that health should be totally paid for and administered by government needs to be vigorously challenged. Yet the author states that extreme care in developing alternative strategies is critical and that a more selective approach, recognizing the inherent requirements of different types of services (preventive vs. curative) is needed.

It is indicated that much progress in reforming fee schedules, public/private roles, and subsidy structures is possible, even with current evidence, before the question, "How far is too far?" becomes critical. DeFerranti concludes by stating that the initial incremental steps in such reforms and more research can help generate valuable, additional information needed in designing subsequent measures.

POLICY RECOMMENDATIONS

Specific policy recommendations were not given. However, the author indicates that general interest has grown in possibilities for increased cost recovery from users and for new forms of private-public partnership in the provision of services. He indicates that more and more governments own and run large systems of health facilities, or heavily subsidize quasi-public systems; users pay relatively little for these services, but some countries have begun to question these policies, and changes will be implemented. No specifics were indicated concerning these changes.

Dor, A., & Van Der Gaag, J. (1988). *The Demand for Medical Care in Developing Countries. Quantity Rationing in Rural Cote D'Ivoire*. Living Standards Measurement Study. Working Paper No. 35. The World Bank, Washington, DC.

TOPIC

In this report, the authors attempt to fill the gap by analyzing the demand for health care in rural Cote d' Ivoire where user fees are zero, but private access costs may be substantial. The main purpose of this paper is to identify the impact of travel time and other economic variables on health care utilization in rural Cote d'Ivoire, where medical services are rendered free of charge. The authors estimated various health care demand models in order to assess the extent of quantity rationing in the health care system in Cote D'Ivoire.

Several authors have pointed out the implications of financing medical care from general public funds. A common theme in the discussions is that user fees can improve efficiency and the prospects for cost recovery, while maintaining current levels of equity. In order to evaluate this argument, the authors indicate that it is necessary to assess the responsiveness of consumers to changes in the price of medical care. Little evidence from developing countries exists to date.

METHODOLOGY

Using a mixed discrete choice/continuous demand analytical framework, the authors demonstrate that the absence of user fees per se does not guarantee equal access to all consumers. The data used in this study are drawn from the Ivorian Living Standard Survey (ILSS). This multi-purpose household survey aimed at measuring many socio-economic factors relevant to the living standards of Ivorian households. In this study, the authors use total household consumption ("income") as a measure of the household's economic well-being. In addition to household data, the ILSS contained community level information in rural areas. Demographic variables and the composition of the household were entered in the Multinomial Logit Model in a simple linear fashion. The authors estimated a market-entry equation for all persons with positive sick time.

FINDINGS

Dependent variable: Income and travel time elasticities

	Nurse alternative	Doctor alternative
ADULTS		
Income elasticity	+ .229	+ .317
Travel Time Elasticities		
Nurse	- .304	+ .173
Doctor	+ .123	-1.108
CHILDREN		
Income elasticity	+ .198	+ .316
Travel Time Elasticities		
Nurse	- .468	+ .178
Doctor	+ .092	-1.122

The authors demonstrated that in the absence of user fees, travel time acts as a rationing mechanism in the health care market. It also seems that access to higher quality care (i.e., doctors) is always severely restricted by long travel times. On the other hand, the authors indicate that because medical care is free, income elasticities in the Ivorian health care market are relatively low, much like they are in the developed countries in which the market for medical care is generally characterized by a high level of insurance coverage.

The authors found that with the exception of health status, economic variables are the most important determinants of health care utilization. Individuals living in households with relatively high income, show *ceteris paribus* a significantly larger probability of seeking health care than their poorer counterparts. They were also able to confirm the proposition that in the absence of money prices, other private costs of obtaining medical care play the role of the conventional price mechanism.

POLICY RECOMMENDATIONS

Their results strongly suggest that if revenues obtained from user fees are used to improve the regional distribution of services, the resulting system may actually improve equity over the long run. They indicate that such an improvement could be used to offset the negative impact on the demand for medical care that is likely to result from the introduction of user fees. The outcome, however, depends on many issues that need further examination. Among them: For which medical services should fees be set? Can the fees result in sufficiently high revenues for improving the system? Do fees have the same impact on poor and rich households, or should fees be made income dependent? Answers to these questions depend on the money price elasticity of demand, the willingness-to-pay for medical care and the cost structure of health facilities.

Dutton, D., Gomby, D. & Meunier, B. (1990). Mothers' Satisfaction with the Cost of Children's Care: The Role of Practice Settings and Actual Expenses. *Social Science and Medicine*, vol. 30, no. 12, pp. 1297-1311.

TOPIC

This paper analyzes mothers' satisfaction with the cost of children's care in six widely-varying ambulatory settings: fee-for-service solo and group practices, a prepaid group, public clinics, hospital outpatient departments, and an emergency room. The paper examines aspects of satisfaction (with regard to out-of-pocket costs, for instance), focusing on its relation to a wider range of patient characteristics and to the financial attributes of different settings.

METHODOLOGY

Data for the present study were collected in Washington, DC. Interviews were conducted with a stratified random sample of households with children aged 6 months to 11 years in two separate areas of Washington. Respondents provided information on the family's socio-demographic characteristics and on each member's health care utilization.

The results include descriptive data comparing costs, charges, and patient characteristics across the six types of settings; one way analysis of variance comparing average satisfaction levels across settings, and multivariate analyses based on ordinary least squares multiple regression.

FINDINGS

Of all the measures analyzed, the dominant influence on attitudes about cost was the mother's overall satisfaction with other aspects of care. Patients demonstrated that they seem to weigh costs and charges against the value they ascribe to the care received. Higher charges do not automatically lead to lower satisfaction levels. Satisfaction with cost varied significantly among practice settings, even when financial protection and various patient characteristics were taken into account.

The most intriguing finding was the positive relationship between satisfaction with costs and actual costs and charges. Instead of reducing satisfaction as one might expect, unusually high costs and charges were generally associated with greater satisfaction. High provider fees might have been interpreted by patients as an indication of quality of care, and thus be a source of reassurance and confidence. It meant that when health is truly threatened, price may well be no object.

The final focus was the relationship between socio-economic status and satisfaction. Although socio-economic status itself was only weakly related to mothers' satisfaction, public assistance had a significant independent association with higher satisfaction.

POLICY RECOMMENDATIONS

To the extent that the findings can be generalized, the authors state that these results hold several lessons. High levels of satisfaction with cost in public clinics attest to the success of these clinics in overcoming financial barriers to access. The authors mention that such an accomplishment should not be minimized, given the disproportionate burden of medical care expenditures borne by the poor.

Furthermore, the authors add that if decreased satisfaction leads to reduced utilization or lower compliance, cost-sharing for the poor may exacerbate existing inequalities in health status and service utilization. Thus, policymakers should not blindly rely on patient cost-sharing and other economic mechanisms only, when controlling medical costs and "rationalizing" health care delivery.

Edwards, N.C., Birkett, N.J. & Sengeh, P.A. (1989). Payment for Deliveries in Sierra Leone. *Bulletin of the World Health Organization*, 67 (2), pp. 163-169.

TOPIC

This paper discusses a study conducted in Sierra Leone on the type and amount of payment made for deliveries by trained versus untrained personnel. It also investigates the relationship between payment and perinatal health outcomes.

METHODOLOGY

Data were collected in 535 randomly selected study villages in two districts, Bo and Pujehun. The interviewers used retrospective questioning of all households to obtain information on all women of child-bearing age who experienced one of the following events in 1982: delivered a child; lost a child under one year of age; died during pregnancy, childbirth, or the postpartum period. Respondents were asked about various features of the delivery and whether or not they had given the birth attendant any payment for the delivery. Additional data was obtained on transportation costs. A two-way analysis of variance was also done comparing payment for deliveries by type of birth attendant and delivery outcome.

FINDINGS

The interviewers collected data on a total of 1378 and 1213 births in Bo and Pujehun districts, respectively. The two districts reported a total of 54 still births and 2537 live births. Untrained traditional birth attendants (TBAs) attended 76.8 percent of all these births. 90 percent of all deliveries took place in a village setting without formal health care facilities. Maternal deaths were reported in 444 of the 100,000 live births in Bo district and in 422 of the 100,000 in Pujehun district.

Data on the payments made for 83.5 percent of the 2591 deliveries in 535 randomly selected study villages showed that the most common method of payment was in cash only. Trained TBAs (38.1 percent) and untrained TBAs (27.2 percent) received payment in kind more frequently than did professional staff like physicians and nurses (2.9 percent). Untrained TBAs received the lowest average total payment for deliveries (Le 4.85). Trained TBAs received higher payments, and the professional staff received the highest (Le 16.60). In both districts, only a minority of the villages had a road leading into the village which was usable by four-wheeled vehicles in different seasons. It was also found that the amount paid for stillbirths in comparison with live births was significantly more for professional birth attendants and significantly less for traditional birth attendants.

Although traditionally TBAs do not request payment for their services, many TBAs complained that they were not paid enough by the women they delivered. Women sometimes said they didn't pay for these services because TBAs are viewed as government employees and thus don't require payment by villagers. Reasons why trained TBAs were paid more than untrained TBAs are unclear; this may be because

trained TBAs have more status, or because a bias exists concerning who gets trained, or because trained TBAs demand higher payments. Due to the higher costs, training a TBA could make her less accessible to mothers who deliver in the village.

In theory, government peripheral health units and district and provincial hospitals provide deliveries for free or at minimal cost; however, the average fee paid for these deliveries was significantly higher than that paid to a TBA. Because mortality rates for deliveries by trained personnel were higher than those by TBAs, the perceived fee schedule might have deterred women from obtaining the services of trained personnel.

POLICY RECOMMENDATIONS

Comparing the delivery fee paid to a TBA prior to and following training could help to identify the reasons why the average payment by mothers for trained TBAs was significantly higher than for untrained TBAs.

Because the data on increased cost for stillbirths born in hospitals were based only on five cases of stillbirths, these data must be interpreted with caution. Finding the reasons for the difference in payments to TBAs and professionals in cases of stillbirth warrants further investigation, since this situation may be influenced by traditional values concerning the outcome of delivery.

Eisemon, T., Patel, V., and Ole Sena, S. (1987). Uses of Formal and Informal Knowledge in the Comprehension of Instructions for Oral Rehydration Therapy in Kenya. *Social Science and Medicine*, 25 (11), pp. 1225-1234.

TOPIC

This paper reports the findings of a study undertaken with the three-fold purpose of: 1) examining how printed information about oral rehydration techniques is processed by African mothers; 2) investigating the influence of indigenous medical beliefs and schooling on their understanding and use of ORT; and 3) developing more effective instructional materials for the treatment of diarrheal dehydration.

METHODOLOGY

Fieldwork was carried out in the Kajiado district of Kenya, a Maasai area with a population of about 150,000 and one of the highest infant mortality rates and lowest school participation rates in the country. Four groups of ten randomly selected Maasai mothers who had obtained at least six years of primary schooling, and who had at least one child less than five years old, were asked questions about the size and characteristics of their families; where they obtained water and whether they did anything to it before drinking it; questions pertaining to mortality and morbidity; and questions regarding beliefs about traditional and modern medical practices. Mothers were shown four versions of printed instructions for the use of the ORT mixture, two in English and two in Kiswahili. The first text in each language appeared as it did on the actual ORT packet, and the second text in each language was a revised (simplified) version of the directions. Mothers were graded on their comprehension of each version.

FINDINGS

Information on how to use ORT packets is normally obtained in three ways: 1) self study of the printed instructions and illustrations contained on the packet; 2) explanation of the instructions by the seller, who may refer to the printed instructions; and 3) communication of the instructions by the individuals who have studied them or obtained explanations from the sellers of the products to the eventual user, usually a family member.

The printed instructions are written in English; only one product is sold with a Kiswahili translation of the English instructions. Uncommon words such as "sachet" and "tumbler" are used in the directions, and a potentially unfamiliar measure (300 ml) is used instead of the commonly used *debe*, a jerry can containing one imperial liter.

Mothers who received the original text made little use of the information it provided as only 40 percent of the propositions they recalled were from the written text. However 95 percent of the information recalled by mothers who received the revised text came directly from the text. Based on this and other indications of the mothers' improved comprehension of the directions from the revised

text, the researchers concluded that correct use of ORT packets can be promoted by simple alterations in the written directions.

While the revised text in Kiswahili was believed by the researchers to be much simpler, it was not any easier for the mothers to read and understand. In daily life, Kiswahili is used to impart information in commercial transactions, but Kiswahili text is seldom read for this purpose. It is more common for Kiswahili to be used to explain an English text.

Major differences were found between the beliefs of schooled and unschooled mothers. Unschooled mothers gave less descriptive symptoms of diarrhea, attributed causes to supernatural factors, were more likely to give traditional remedies including purgatives, and seldom recognized that this may worsen dehydration.

Schooling not only fosters a conviction in the efficacy of modern medicine, it also imparts knowledge essential to understanding the physical and biological characteristics of diarrheal diseases which, in turn, is necessary for effective home treatment and prevention of disease. Schooling also imparts literacy, enabling an adult to read printed instructions.

The knowledge involved in effectively using ORT is not merely a surface awareness of its benefits; it is also an understanding of the environmental and biological causes of diarrheal diseases and an ability to explain the course of treatment that schooling seems to develop.

Ellis, R. P. (1987). *The Revenue Generating Potential of User Fees in Kenyan Government. Social Science and Medicine*, 25 (9) pp. 995-1002.

TOPIC

This paper develops a methodology to estimate the potential for generating revenue from a system of user fees for health services in Kenya. Eight principles upon which a fee system should be based are discussed, and a formula for estimating total revenue is presented. The author estimates that the level of revenue generated by fee structures could range from 10 percent to 22 percent of the government's total recurrent health costs.

METHODOLOGY

A set of parameters that approximates the Kenyan public health care system are used to predict the total government revenue each type of facility would generate. After introducing six different factors which affect total revenue, the author creates three fee structures to illustrate the methodology. The specifications for the fee structures include the following points:

- ▲ Fee structures are divided into low, moderate and high levels. Moderate fees are double and high fees are five times the level of low fees;
- ▲ Fees are higher at more specialized facilities;
- ▲ Vaccines, prenatal care, and preventative health care services are provided free of charge at all facilities;
- ▲ Follow-up visits for a person requiring repeated treatments do not require payment of more than one fee;
- ▲ Inpatient fees per day are higher than those for outpatient care to discourage inappropriate treatment;
- ▲ Fees are levied for drugs, lab tests, and other specialized services.

FINDINGS

Introducing fees to the health system in Kenya could help to eliminate some current problems. For example, many people in rural areas live a substantial distance from government facilities and therefore must often pay for travel costs or for more expensive, closer facilities. In addition, many patients must pay for drugs on the private market because of frequent drug shortages at government facilities. Access could be increased by using revenue from user fees to increase the availability of drugs and facilities. Also, many people often visit hospitals for treatment rather than visit a less expensive facility. Patients could be encouraged to use the less expensive local hospitals or clinics.

Fiedler, J. L. (1990). Organizational Development and Privatization: A Bolivian Success Story. *International Journal of Health Planning and Management*, vol. 5, pp. 167-186.

TOPIC

In 1983 the U.S. Agency for International Development sponsored the creation of PROSALUD, a private, non-profit network of 17 community-sponsored health centers located in Bolivia. This article analyzes PROSALUD's structure and operations and the factors which contributed to its success.

METHODOLOGY

This paper does not provide any data about demographic, health, socio-economic status, and the like. Information for the case study of PROSALUD was obtained from various studies, such as AID's Bolivia project paper and reports published on PROSALUD in Santa Cruz. The object is to identify some of the major trends in the public health sector in Bolivia, and to explain how PROSALUD has become an asset to the health care system.

FINDINGS

Due to serious economic problems, the Bolivian government has cut down on Ministry of Public Health (MPH) financing. In 1987, MPH per capita expenditures were 38 percent of their 1980 level. From 1985 to 1988, the share of General Treasury of the Nation (TGN) in total MPH financing dropped to between 50 and 60 percent, while the share of foreign aid and user fees increased to between 40 and 59 percent. User fee-generated revenue grew by more than 600 percent, from \$US 1.7 million in 1984 to \$US 10.3 million in 1988. In the case of Santa Cruz in 1987, 88 percent of all TGN funds paid for personnel, and user fees paid for 84 percent of all monies spent on operation costs. In addition, falling salaries have led to a high rate of absenteeism and tardiness, and an average annual staff turnover rate of 30 percent. Because of the increase in user fees and a drop in the quality of care due to a recurrent cost crisis, Bolivians appear to be substituting private care for the relatively more expensive, less desirable public care. Due to increased prices of MPH care, most analysts believe that the MPH provides coverage to only 30 percent of the population and that 30 percent of Bolivians have no access to health care.

PROSALUD was organized as a response to the problems outlined above. The official title of this project is "Self-Financing Primary Health Care." PROSALUD's goals, which have often conflicted, consist of: 1) making the system self-financing; 2) serving low- and middle-income persons; and 3) providing primary health care services. The 12 urban and 5 rural PROSALUD facilities, as well as the Catholic Church and the Lions Club, constitute the major private, non-profit health care providers in Santa Cruz. Compared to PROSALUD's fixed prices, the minimum prices recommended by the for-profit, private Medical College of Santa Cruz (MC) are generally 3 to 4 times greater. Prior to the creation of PROSALUD, the MC had effectively enforced its price schedule to maintain prices of private physician services, despite a glut of physicians in Santa Cruz's health service market. It is not clear how much this situation has changed, but it is clear that

PROSALUD represents a threat to MC's system of artificially restricted competition.

In the first three quarters of 1989, PROSALUD was 92 percent self-financing, an increase from its 1988 level of 81 percent and 60 percent level in 1987. Urban clinics consistently outperformed rural clinics in achieving high self-financing levels. Rural clinics faced higher unit costs than urban clinics, and also lacked three of the highest revenue generating services: obstetric/gynecologic, pediatric, and dental examinations. By 1989 PROSALUD had attracted a service population of 90,000, and was providing high quality health care of which 45 percent was preventive. Eight percent of all the care it provided was free-of-charge care to indigents.

Fielder, J. L. (1991). *Organizational Development and Privatization (A Bolivian Success Story): A Rejoinder. International Journal of Health Planning and Management*, vol. 6, pp. 157-160.

TOPIC

In this rejoinder, Fiedler agrees with Gish's point that a lack of data on the net impact of PROSALUD makes in-depth analyses difficult. But he maintains that the major trends in the public health sector over the past decade do indicate what the health care system would have been like without the creation of PROSALUD.

METHODOLOGY

Fiedler's remarks are based on the information which appeared in his article, "Organizational Development and Privatization: A Bolivian Success Story." He also refers to a section of the original manuscript which did not appear in his article due to space limitations. This section pertains to the development and ownership of the clinics, and verifies that six clinics are, in fact, owned by PROSALUD.

FINDINGS

Because the Ministry of Public Health's (MPH) viability was threatened by the severity of the public health financing crisis in the 1980s, the introduction of user fees was necessary. The increasing levels of public sector user fees has left an undetermined number of Bolivians unable to afford formal health care and has caused others to switch to lower-cost, private care. This move to the private health sector during a period of generalized macroeconomic decline indicates that the quality of public health care declined during these years.

Fielder believes that PROSALUD's development during these economically troubled times provides an example of how the private sector can play an important role in the improvement of a health care system. Some facilities may not have been able to maintain their present quality of care at the same prices without the involvement of PROSALUD. Although the public sector has shrunk mainly because of its financing problems, PROSALUD has not simply supplanted the MPH. Instead, PROSALUD has partially stemmed the erosion of access to and utilization of health care in Santa Cruz.

Finally, PROSALUD does not seem to be "skimming the cream" from the "real" private sector, since it is generally regarded primarily as a substitute for MPH services (due to their similar price structures). Like Gish, Fielder also believes the public sector should not have the same sort of self-financing goals as the private sector.

POLICY RECOMMENDATIONS

Bolivians must develop a realistic long-term plan for what they want and can afford their public health sector to do in the next 10 to 20 years. Additional short-term responses can then be made within this larger framework.

Finerman, R. (1987). *Inside Out: Women's World View and Family Health in an Ecuadorian Indian Community. Social Science and Medicine*, 25 (10), pp. 1157-1162.

TOPIC

This article addresses the world view of Saraguro Indian women who regard the home as a refuge from illness and who believe that the outside world is filled with disease. This belief influences their decisions regarding the use of health care services by reinforcing a fear of strangers and reliance on mothers for family health care.

METHODOLOGY

The author bases this paper on data acquired over four seasons of research in Saraguro villages between 1978 to 1984. One hundred-forty women's health and community development group members completed open-ended questionnaires each month between 1980-1981, recording health beliefs, incidence of family illness, and therapeutic recourse. In-depth interviews and participant observation were also undertaken between 1978 and 1984 with a subsample of 50 male and female informants.

FINDINGS

Saraguro Indians express a preoccupation with illness as a result of high morbidity rates in the region and attribute illness to the interaction of several causal variables, including hot-cold humoral opposition and a distinction between incidental (natural or environmental) and personalistic (usually supernatural) disease agents. Saraguros indirectly convey the notion that the outside world is the primary source of contagion and disease; adult Indian women, who treat a majority of health complaints in families, are the most likely to express this belief. Most common disorders are consistently attributed to sources outside the home.

Because of perceived links between the environment, distance from home, and disease, Saraguros demonstrate concern for individuals leaving the house. However, they continue to exploit resources at a distance from the home because the perceived benefits of this activity are higher than the perceived health risks. Proper dress at all times is considered essential to protect against disease. Charms, such as red wrist bands, and many layers of clothing are worn outside the home in order to protect against both natural and supernatural disease agents.

Saraguros returning home after an extended absence were observed to throw open the door of the home and then wait for a period of up to two hours before entering the house, for fear of evil winds and spirits trapped in the house. After someone dies in a house, the house must be thoroughly cleaned before it is considered safe for occupation. Saraguro women also believe that a house can be a breeding ground for disease if the house is not clean. Thus once introduced by health educators to the concept of germ theory, women are swift to point out the cleanliness of their homes. The introduction of latrines has been far less successful, as Saraguros believe that excrement can be used by witches to cast spells, and thus resist them, stating that they are unsanitary and

provide witches with ready access to the materials necessary for spell casting. (Saraguros traditionally defecate in private and bury their excrement). Flush toilets are beginning to be accepted by some who say that waste flushed underground is no longer accessible to witches.

Health related caution extends to the Saraguro diet and eating habits. Saraguros readily consume food prepared by relatives, but demonstrate reluctance to eat foods cooked by nonrelatives. Since environmental agents outside the house are identified as being beyond the control of women, it logically follows that they cannot be held liable when family members fall ill. Thus, beliefs about causality permit Saraguro women to protect their public status as curers and their own self-image as competent family caretakers. Since etiology presents a basis for therapeutic choice, patients who identify the external world as dangerous may choose to avoid sources of therapeutic care outside the home. This seems to be the case of Saraguro families, where mothers are found to provide almost all medical care.

Foster, S. O. (1991). Supply and Use of Essential Drugs in Sub-Saharan Africa: Some Issues and Possible Solutions. *Social Science and Medicine*, 32 (11), pp. 1201-1218.

TOPIC

This paper describes drug supply systems in Africa, both public and private, and concludes that the private sector may have some serious drawbacks. It examines three major areas of concern: (1) drug supply systems, (2) opportunities for improving inefficiencies and reducing waste, (3) issues of specific importance to Africa. This article has many anecdotes of barriers to consumption in countries all over Africa.

METHODOLOGY

Literature regarding the issues at hand as well as anecdotes provide the framework for the study. A comparison is made between public and private sector drug delivery, based on WHO data. The value of drugs distributed through the public sector is adjusted by a factor of two in order to give a more accurate picture of the volume of drugs distributed in the public sector as compared to the private sector.

FINDINGS

Per capita drug consumption can be misleading because it says nothing about the distribution of drug supplies—drugs tend to "stick" at central levels and in hospitals. Pricing has a great effect on the availability of drugs: the urban poor are prevented access due to the high prices of drugs available through the private sector and the shortages of drugs in the public sector. Private pharmacies in Burkina Faso and Mali are cited as carrying drugs at 150-200 percent of the retail price for the same drug in France, despite the very much lower purchasing power of the clients.

Drugs distributed by the private sector were often found to be of questionable quality. Counterfeit and expired drugs were widely distributed and drug peddler shops which were authorized to sell only over-the-counter medicines in fact had a large supply of prescription drugs available. People cited lack of transport and cost as reasons for non-utilization of hospital dispensaries; and expeditious treatment, the availability of drugs, and the fact that they were open in case of emergency as conveniences of the unlicensed drug shops.

The private commercial sector has yet to play a significant role in the distribution of essential drugs. In order to purchase inexpensive drug supplies on the international market, substantial foreign exchange is required; the shortage thereof prevents the purchase of supplies by the government. The author states, "The fact that so many people benefit from the system creates great resistance to needed improvements and control procedures; no one has an incentive to improve logistics or to tighten management, and the pressures to maintain the status quo are considerable." Drugs are available in small, and thus less expensive, quantities only from illicit drug peddlers and unlicensed drug shops, thus

increasing the possibility that the drug may be expired or counterfeit.

The "indigenization" and "cultural reinterpretation" of Western medicines results in people taking particular drugs because of their color, shape, or usefulness in similar diseases and not for the prescribed use of the drug. She cites Whyte, stating, "The contents of tetracycline and chloramphenicol capsules are emptied into infected eyes, or mixed in milk to counteract vomiting." Foster is critical of the Bamako Initiative, which calls for rural patients to pay for medicines, pointing out that the scheme would generate only local currency and thus not affect the critical shortage of foreign exchange available for the purchase of imported medicine.

POLICY RECOMMENDATIONS

Foster cites the WHO Workshop on the Financing of Essential Drugs (March, 1988) as a source of alternative solutions:

- ▲ The first step in increasing availability of drugs should be to rationalize procurement and use. Reallocation of health sector expenditures is also cited.
- ▲ Cost recovery brings with it hidden costs, such as the decreased utilization of health facilities and the increased administrative efforts required. User fees also bring into question the issue of cash availability in poor communities: "Lower income groups have only about 25 percent of their income in actual cash...Lack of cash prevented people from purchasing chloroquine in a drug sales scheme in rural Malawi, even though morbidity and mortality from malaria were the major health problem of the area; the drugs eventually had to be given away before they expired."

Foster, S. O., Shepperd, J., Davis J., & Agle A.N. (1990). Working with African Nations to Improve the Health of Their Children. *Journal of the American Medical Association*, vol. 263, no. 24, June 27, pp. 3303-3305.

TOPIC

This article reports on the activities of the Combatting Childhood Communicable Diseases (CCCD) project during the first eight years of its operation, 1982-1989. The ten countries with which it works are the Central African Republic, Burundi, Cote d'Ivoire, Guinea, Lesotho, Liberia, Nigeria, Swaziland, Togo, and Zaire.

METHODOLOGY

This article uses data obtained from the CCCD project and from various studies on communicable diseases in African countries to discuss the impact of immunization, diarrhea treatment, and malaria treatment. Although this study does not provide comprehensive data for one country in particular, it includes examples of misinformation and interference that occurred in various countries.

FINDINGS

Early CCCD program assessments of treatment practices at hospitals and ambulatory care centers recorded high rates of inappropriate, expensive, and potentially dangerous therapy for diarrhea. Often the types of intravenous fluids, quantities administered, and sterility of delivery did not meet established standards. Introducing oral rehydration therapy has helped to reduce diarrheal admissions, treatment costs, and deaths. For example, the introduction of oral rehydration therapy at Kamuzu Hospital in Malawi has reduced diarrheal admissions by 50 percent and deaths related to diarrhea by 25 percent per 1000 pediatric admissions.

At the time of this study, the CCCD seemed to be having a lower success rate with the treatment of malaria than that of diarrhea. Due to the spread of chloroquine-resistant *P falciparum* across Africa, the effectiveness of standard chloroquine therapy has decreased. As a result, standard chloroquine therapy has been changed to increase its dosage per day. In Nigeria, however, this treatment has been complicated by the presence of low-potency and fake chloroquine on the market.

In order to improve the health programs of the countries with which it is involved, the CCCD project identified training needs and developed training strategies for health workers. For example, performance problems in Togo included reusing the same syringe without sterilization, deficiencies in clinical assessment, and inadequate communication to mothers. In addition, after CCCD officials discovered the Togo health workers' expensive and potentially harmful excessive usage of injectable agents to treat malaria, they introduced training to emphasize the maximum use of oral antimalarial drugs. This action led to a decrease in the use of injectable antimalarial drugs for over 50 percent of cases in 1983 to less than 10 percent in 1989. The prevalence of home treatment is also a concern of the CCCD project. In Togo it was estimated from family reports that only 30 percent of chloroquine

dosages administered in the home were in the therapeutic range. Similarly, in Lesotho, only 37 percent of 155 home diarrheal treatments had mixed in the recommended level of sodium.

POLICY RECOMMENDATIONS

In order to combat the high rates of infant and child mortality in Africa, selected child health services and health information systems must be strengthened. In addition, it is important to focus on training health workers and educating the public to provide a framework for continued progress in the improvement of health.

Frederidsen, H. (1961). "Determinants and Consequences of Mortality Trends in Ceylon," *Public Health Reports*, 76, pp. 659-663.

TOPIC

The author discusses the causes behind the decline in mortality in Ceylon (later Sri Lanka) between the 1930s and the 1950s, and the socio-economic consequences of this decline. A particular point of interest is whether the sharp fall in mortality occurring between 1946 and 1947 was due to a malaria control program or to other factors.

METHODOLOGY

Graphical analysis shows the crude death rate on a downward trend between 1930 and 1942, rising slightly between 1942 and 1946, then falling again. Graphical extrapolation of the 1930-42 trend reveals what would have happened after 1942 if mortality-reducing conditions had remained the same, and the difference between extrapolated and actual values after 1942 represents the net effects of new factors affecting mortality.

FINDINGS

Crude death rates in 1947 and subsequently fall close to the trend line extrapolated from 1930-42. Since malaria control played little or no part in establishing the earlier downward trend in mortality, it therefore does not explain the mortality levels of 1947 and subsequent years. The interruption of the downward trend in 1943-46 can be explained by nutritional deficiencies caused by food supply problems in wartime. The restoration of nutritional levels after the war coincided with a new anti-malaria campaign. The latter development is usually given the credit for the sharp fall in mortality in 1947, but the graphical analysis suggests that the real explanation lies in nutritional improvement.

Freund, P. (1991). *Politics, Planning and Primary Health Care in Zambia*, in *Health Care Patterns and Planning in Developing Countries*. Akhtar, R., (ED.) NY: Greenwood Press, pp. 75-98.

TOPIC

Development planning in Zambia has been guided by a political ideology which espouses equitable access to health care services for the whole population. Wide disparities between rural and urban areas in terms of services/resources and income distribution still remain despite progress made since independence. This article examines the major health-related issues surrounding the politics and planning dialectic in Zambia, with particular reference to health policy and health resources.

METHODOLOGY

Demographic data and an historical overview of Zambian development policy since independence provide background information for this article. Official Government of Zambia policy statements and general literature regarding development policy supplement the body of the work.

FINDINGS

Zambia is a country with high fertility and consistently declining mortality. Almost half (49.8 percent) of its population is under the age of 15; 46 percent of the population lives in urban areas, many in squatter settlements, and this number is rapidly increasing (this constitutes one of the highest rates of urbanization in Africa). The economy is highly dependent on copper exports, and experienced a 72 percent drop in trade from 1974-82. Development investment has been unevenly distributed, emphasizing urban areas over rural ones. Zambia's development policy has been based on three National Development Plans (1966-71, 1972-76, and 1986-90). Health policy has been influenced by the economic situation of the last ten years, and health planners have realized that health services are in a state of crisis and that the network of health services established since independence cannot be maintained adequately nor expanded. Grass roots development projects have been proposed as a part of health care development; however their progress has been impeded by a lack of community-level mechanisms to mobilize participation.

Zambia has shown a continuing commitment to financing the health sector. The government health expenditure comprised 6.1 percent of the total government expenditure. However, measured in real terms the MOH expenditures have declined 17 percent from 1970-1981, and a further 12 percent from 1982-84. Health services and drugs are currently supplied for free, with funds coming from the government (45 percent), the mines (20 percent), missions (3 percent), foreign donors (12 percent) and the private sector (12 percent).

Approximately 25 percent of the rural population remains unserved by government health services; 75 percent of 32 health centers surveyed in 1983 did not have sufficient supplies of anti-malarial and other essential drugs.

The majority of health personnel is in short supply. In 1980 the disparity in the physician/patient ratio ranged from 1:5,000 in Copperbelt Province to 1:19,000 for the rest of Zambia. There are over 500 vacancies for rural clinical officer positions. Pharmacists, laboratory technicians, radiographers, physiotherapists, and optometrists are all in critically short supply.

Schemes and programs designed to alleviate malnutrition have all been vertical in approach, and although they had some initial impact the malnutrition situation has worsened over time. This demonstrates that the deep structural causes have not been altered. In spite of the decentralization policy and the existence of favorable local institutional structures, political clashes surrounding Primary Health Care development are common.

POLICY RECOMMENDATIONS

The country needs to adopt a multi-sectoral approach that will modify the causes of social deprivation and inequality. This means a broad strategy incorporating employment, health, and agricultural policies, all of which should be consistent with one another and impact directly on nutrition. There is an immediate need to reorient health services away from their curative, urban based bias. Plans are being made to place more attention on women and on rural areas which have high morbidity and high malnutrition rates. Implementation of various cost recovery strategies is also being planned. Allocation of funds should be made with the specific goal of reducing inequalities in per capita health care expenditure in different regions of the country.

Gertler, P., Locay, L., Sanderson, W., Dor, A. & Van Der Gaag, J. (1988). *Health Care Financing and the Demand for Medical Care. Living Standards Measurement Study. Working Paper No. 37. The World Bank, Washington, DC.*

TOPIC

This Living Standards Measurement Study includes two reports that are part of a larger study on "Health Care Demand and Resource Mobilization." (Report I: Are user fees regressive? The welfare implications of health care financing in Peru. Report II : Non-price rationing for medical care: The case of Cote d'Ivoire.) This study addresses the issue of how various financing systems for medical care influence its utilization. Emphasis is on the impact of introducing (or raising) user fees, in terms of distributional effects, welfare consequences, and revenue potential.

METHODOLOGY

The empirical work in the first report is based on data from a Peruvian household health survey (1984). The second paper estimates a variant of the same model, using data from the 1985 Ivorian Living Standards Survey.

The first paper develops a discrete choice model of the demand for medical care from a theoretical model that allows for the quantification of the effects of price and non-price variables on a person's decision of whether or not to obtain medical care, and if so, from which provider. It is demonstrated that, in the context of a discrete choice model, if health is a normal good, then the price elasticity of the demand for health care must decline as income rises. This seems to imply that the models in previous discrete choice studies that make the price effect independent of income are misspecified.

In the second report, the authors define the dependent variable as a probability that utility for a given service is greater than from any of the other alternatives. A Nested Multinomial Logit model is used which allows correlations across subgroups of alternatives, and therefore, non-constant cross-price elasticities across sub-groups. A discrete choice specification is derived from a theoretical model that has a natural interaction between price and income, and that includes travel time in the budget constraint as an access price, as well as directly in the utility function as a nuisance parameter.

FINDINGS

Unlike previous studies, it is found that price plays a significant role in the demand for health care, and that demand becomes more elastic as income falls, implying that user fees would reduce the access to care for the poor proportionally more than for the rich. The introduction of user fees in Peru had the potential for raising significant revenues for cost recovery by shifting the financial burden (and commensurate welfare loss) of the health care system from taxpayers to users.

The main empirical results appear to be robust, and the effect of non-price rationing is found to be strong. However, both papers focus on provider choice rather than on total medical consumption, and thus, should not be judged as final.

The findings indicate that travel time plays an important role in determining health care utilization both as a price and a nuisance parameter. Over the zero to two-hour travel time range, the demand elasticities more than triple. Particularly, the clinic demand elasticity for the lowest income quartile increases from -.531 (for the 0 to 0.5 hour range) to -1.962 (for the 1.5 to 2.0 hour range). For the highest income quartile, the clinic demand elasticity increases from -.230 to -.854. The health care demand among poorer individuals is therefore substantially more travel time elastic than amongst richer individuals. The net travel time elasticities are lower than the own price elasticities but not insignificant in magnitudes. This implies that significant numbers of individuals are forced out of the market due to travel time rationing.

The major message of both papers is that in the absence of user fees (or at low fee levels) private costs (here represented by travel time to the nearest provider) take over the rationing role of the conventional price mechanism. The first paper shows how the quantification of this effect can be used to simulate the distributional and welfare consequences of changing the fee structure.

POLICY RECOMMENDATIONS

There were no clear policy recommendations but the authors suggest that a natural solution to the health care financing dilemma would be to introduce user fee schedules that increase with ability to pay. In essence, the health care financing dilemma for developing nations is that the improvement in allocative efficiency and cost recovery from user fees would be accompanied by a redistribution of welfare from poorer to richer.

Gish, O. (1991). Organizational Development and Privatization (A Bolivian Success Story): A Comment. *International Journal of Health Planning and Management*, vol 6, pp. 155-156.

TOPIC

In this correspondence, Oscar Gish comments on John Fielder's article concerning organizational development and privatization in Bolivia. Fielder maintains that PROSALUD is becoming more financially independent and privatized; however, Gish believes that PROSALUD is just providing new management for publicly owned services.

METHODOLOGY

Gish emphasizes that Fiedler's study lacked 1) distinguishing factors of self-financing public and private health care sectors, and 2) comprehensive data on the demographic, health, socio-economic status, etc., of the population of Santa Cruz. He bases his argument on information which Fiedler provided in his article.

FINDINGS

According to Gish, in the PROSALUD project there has been no transfer of ownership from the public to the private sector. In addition, while the study indicates that the "service population" of PROSALUD numbers 90,000, it fails to compare the volume of care available to the 'service population' before and after the project's implementation. Because ten out of PROSALUD's fifteen facilities are in urban areas, it seems that the ability to pay for income-generating curative services is very high in the city compared to in the country. Judging from the PROSALUD experience, neither public nor private self-financing clinics can provide care for the poor majority. After noting that 600 of Santa Cruz's 1200 physicians are estimated to be unemployed, Gish asks if PROSALUD may just be drawing trade away from traditional private sector providers.

POLICY RECOMMENDATIONS

Although the public health sector needs better management and greater efficiency, Gish believes it should not have the same goals as the private sector.

Gish, O., Malik, R., & Sudharto, P. (1988). Who Gets What? Utilization of Health Services in Indonesia. *International Journal of Health Planning and Management*, vol. 3, pp. 185-196.

TOPIC

This study's main purpose is to evaluate health service utilization patterns in five rural districts and a number of urban areas in Indonesia. The authors attempted to measure "outputs" from the health care system in relation to relevant "inputs," that is the relative efficiency of the system and its parts in utilizing the resources available to them.

METHODOLOGY

Surveys of the work of the four basic parts of the district health care delivery system (hospital, health center, sub-center, and community health post) were examined. The data collected from the records of health facilities included financial inputs and expenditures, personnel employed and their cost, pharmaceutical expenditures, demographic characteristics and geographic origins of patients, and the types of services utilized.

FINDINGS

While confirming more precisely the generally low utilization rate of the services, the study was able to relate its utilization to a population base. It was found that the average annual rate for both curative (two-thirds of the whole) and preventive contacts between the population of the ten sub-districts and the public hospitals, health centers and sub--centers in those areas was .82 per capita. This is relatively low by international standards and particularly so when compared with other countries known to have achieved better health indices than Indonesia. Private sector contacts, which overall are almost entirely curative in character, increase the annual contact rate to around 1.4 per capita. The authors suggest that this is the indication that a significant part of the population is not effectively in the health care system.

A close correlation between income and service utilization emerged from the results of a structured survey conducted within the larger survey. The results show that there is relatively good utilization of public services (on average perhaps twice a year) by those with higher incomes and by those enjoying the type of privileged access which comes from membership in an insurance scheme.

POLICY RECOMMENDATIONS

The authors state that one major lesson of the Indonesian experience with such studies is the need for health ministries to focus carefully on the collection of a limited set of basic information indicators. This would be the initial step of a longer process which would lead ultimately to more sophisticated cost-benefit analyses, studies of the precise effects on health

status of selected health care expenditures, more perfect supply and demand forecasts, among other analyses. They indicate that the question, "Who gets what?" will have to be integrated into ongoing efforts to quantify and analyze health care financing systems if these analyses are to contribute to the development of efficient and effective health services.

Goldman, F., & Grossman, M. (1978). The Demand for Pediatric Care: An Hedonic Approach. *Journal of Political Economy*, vol 86., no. 2, pp. 259-280.

TOPIC

In this paper, the authors argue that the differences in quality of a good are a distinguishing feature of the market for physicians' services. The authors indicate that the quality differences among physicians can be traced to their different levels of investment in human capital. The authors wish to demonstrate theoretically and empirically that the ratio of quality to visits varies with income, with the physician fee, and with time price components of pediatric care.

METHODOLOGY

The data source used to estimate demand functions for the quantity and quality of pediatric care is a longitudinal and cross-sectional survey covering 21 months in the period 1965-66. The key variables are annual number of office visits to physicians by the sample children, characteristics of these physicians, and their usual fees.

A model is developed to analyze properties of the demand functions for quantity and quality. It is then applied to study the demand for pediatric care—physicians' services rendered to children. The theoretical model of quantity-quality substitution provides a framework for demand analysis whenever the market for a good is distinguished by a quality component.

This analysis is developed within the household production framework of consumer behavior and assumes that parents both demand and produce quality in children, where children's health is one aspect of their quality. Thus, the demand curves for pediatric care are derived from the interaction between the demand and the production functions of children's health. In this analysis, the authors emphasize the effects of income, the price of pediatric services, and the time costs of obtaining these services on the quantity (measured in terms of visits) and quality of services demanded. The demand functions are fitted by two-stage least-squares, with quality-adjusted price treated as an endogenous variable.

FINDINGS

Income has a positive regression coefficient in each demand curve and is statistically significant at conventional levels. The income elasticity of visits (1.318) is much larger than the income elasticity of quality (.162). The authors suggest that this finding, that visits are more responsive to income than to quality, might appear to be counterintuitive. An increase in fixed cost per visit lowers the relative price of quality and leads consumers to substitute quality for visits. Quality-adjusted price was found to have a negative and statistically significant regression coefficient in the demand curve for quality. Thus, the findings are consistent with the null hypothesis that quality-adjusted price has no impact on visits.

POLICY RECOMMENDATIONS

The authors predicted that the ratio of quality to visits falls as income and quality-adjusted price rise, and rises as the fixed cost of a visit rises. Their predictions held for price elasticities whether money income or real income (utility) is held constant. The authors implied that, since their findings indicated that private pediatric visits are very sensitive to income, it might be more efficient to increase these visits by means of direct cash subsidies rather than by means of national health insurance. However, the relative merits of alternative forms of health insurance would depend in part on the relative effects of quality and visits on child health outcomes.

Gray, C. (1986). **State-Sponsored Primary Health Care in Africa: The Recurrent Cost of Performing Miracles.** *Social Science and Medicine*, 22 (3) pp. 361-368.

TOPIC

The author examines the distinction between development and recurrent cost elements in health program development in Africa. He looks at true social costs and how they compare with perceived benefits of a state-sponsored interventions. He looks at recurrent versus non-recurrent costs; marginal versus average costs of primary health care (PHC); a shadow price for uncommitted budget resources; overhead costs for PHC interventions; and project benefits.

METHODOLOGY

The author draws on program evaluations and economic data from the Mali Rural Health Project (RHP) and the Sine Saloum (Senegal) Rural Health Project, using relevant literature as well as his personal experience in the area. He presents a written analysis as well as several graphs detailing "personnel costs of Malian district health service support of primary care interventions" and "production function for government services in Mali."

FINDINGS

There is no necessary connection between the completion of an (international donor) aided project's initial financing and the point at which the resulting installed capacity can be said to be functioning normally. Establishment cost can therefore be defined as donors paying for almost any conceivable expenditure on a PHC intervention up to the point that the installed health service capacity is capable of continuing to function without external supports. Non-recurrent PHC service costs could include: 1) technical assistance to health bureaucracy responsible for promoting and overseeing PHC; 2) transport of pharmaceuticals from central deposits to the periphery; 3) transport of health service staff at district level or below on village health workers (VHW) supervisory missions.

The argument is made that unless a development activity generates sufficient economic surplus to renew the capital that sustains it, it is not viable without periodic subsidization to the extent of that capital. The question is, "Which capital costs stand a good chance of being refinanced by donors?" In general, the shorter the economic life of the asset, the less ready donors are to finance its repeated renewal or replacement. For example, structures housing the district health service that supervises a coterie of VHWs is more likely to receive renewed funding than the mobyettes which transport the VHW supervisors.

It remains in question who should be responsible (donor or state) for the costs of training replacement VHWs after the initial generation are no longer in the work place due to migration, death, or other causes. Allocation of rural district health service budgets in Mali usually run 95 percent for personnel and 5 percent for expenditure on materials including drugs. Thus staff members are essentially stationary and must wait for the public to consult them; paradoxically it is also noted that health service drug

supplies rarely last long, and therefore the usefulness of the health service personnel is further diminished. Only a fraction of the personnel's time is productively employed.

The author applies a shadow coefficient well in excess of 1.0 for the small residuum of domestic budget resources not committed to paying staff salaries. Use of this shadow price sharply increases the marginal recurrent cost of PHC models involving regular supervision of VHWS, and significantly reduces the net benefit of most PHC projects in Africa, in some cases clearly rendering it negative. In the case of Mali, the RHP was field-tested in two (of 46) districts, in order to establish the feasibility of replicating the project throughout the country. Comparing the tempo of bureaucratic activity required to sustain the RHP in only two districts with the *modus operandi* of the Malian bureaucracy as a whole, one concludes that the large scale project would be extremely unstable. The required concentration of managerial resources would make the PHC administration a prime target for raids on its personnel and material assets for the rest of the health bureaucracy.

Costs of an intervention can only be judged to be high or low by comparison with the resulting benefits. An indicator of benefits is the willingness of the community to pay for the continuation of a PHC intervention after foreign assistance is exhausted. In the cases of both Senegal and Mali, community members stated that improvement of water supply was a higher priority than funding the district health service support for PHC. There is considerable evidence for concluding that failure of the Mali and Sine Saloum PHC projects to attract local funding to sustain them reflects not so much institutional blockages as it does a perception by the population that benefits are not commensurate with what they would have to pay to maintain the interventions at design levels.

POLICY RECOMMENDATIONS

Experiment with affordable PHC interventions, limiting recurrent state participation to supervision that can be conducted at central locations and utilizing private commerce to make basic drugs conveniently available through VHWS.

**Gray, C. , Baudouy, J., Bang, M., Martin K., & Cash. R. (1990).
Primary Health Care in Africa: A Case Study of the Mali Rural
Health Care Project, 1978-1982. Westview Press, Boulder, CO.**

TOPIC

In 1978 USAID devised a plan based on village health workers (VHWS) who were to be trained and serviced by officials of the public health service based at the district and sub-district level. The four-year project, entitled Project Sante Rural (PSR), was designed as a potential model for basic health care delivery that could later be adopted by all of Mali's 40-odd districts. This summary reviews the outcome of this plan and suggestions for future options in rural Mali.

METHODOLOGY

This project took place in two demonstration sites in the districts of Yelimane and Koro. A variety of groups participated in the project, including personnel from various public health offices and centers in Mali, the USAID, the Harvard Institute for International Development (HIID), and Peace Corps volunteers. Every stage of the project and all field staff observations were carefully documented.

FINDINGS

Because of Mali's tight fiscal situation, the project designers created a set of activities which could be financed at a low cost once the initial \$3.9 million in foreign aid was used. The activities were designed to cost the Malian economy, per resident of each subdistrict served, no more than the current per capita public health expenditure, an estimated \$1.70 at the then current exchange rate.

Financed by foreign aid, 16 sessions of 3 to 10 days trained 177 hygieniste-secouristes (HSS) and 77 traditional birth attendants to serve around 70 villages with 65,000 inhabitants, out of 260,000 people in Yelimane and Koro. The VHWS treated ailments and promoted proper nutrition and environmental sanitation. In order to maintain the program's progress, the district health staff were sent on periodic supervision tours to replenish drugs and maternity kits, collect statistics, and update the VHWS' training. The PSR staff found that out of various approaches used to train village health workers, weaving lessons about sanitation and health care into stories relating to the local culture, worked particularly well.

But on a per capita basis, sending the district health staff on tours cost the project six times the health service's per capita budget for non-personnel expenditure, in part because of per diem payments which were excluded from the government budget. Cuts in per diem payments led to decreasing interest in tours and a cessation in the resupply of drugs and maternity kits. Activities were terminated early in the district of Yelimane due to management problems and a bitter environment.

Further problems arose because the level of per capita outlays on the rural population at that time equalled around 16 U.S. cents, much less than the estimated \$1.70 per capita program cost. Local sources that were considered for supplemental financing were the national and regional governments, donations by villagers, and the margin on drug sales to the HSs' patients. Due to severe financial constraints, the government could not afford any additional expenditures; and village elders said improved water supplies had priority for any donations. Although the direct cost to USAID of procuring the PSR's four main drugs in the U.S. and airfreighting them to the project headquarters in Bamako was considerably below the prices charged by the state pharmaceutical monopoly, collecting a revenue from drug sales did not work because:

1. As the composition of PSR drug sales changed, the margin would have decreased significantly by 1992;
2. Import prices of French and U.S. products changed substantially in favor of French drugs, which supplied the state monopoly; and
3. The government would not likely agree to exempt sales of PSR drugs from Malian taxes, comprised mainly of import duties, which accounted for 14 percent of the retail price of the pharmaceutical monopoly's drugs.

The PSR also proposed three "voluntary levy" programs, which consisted of setting a levy per household that would be handed over to the district health service, providing an option for families to pay a subscription fee to obtain access to village health service, and requiring a consultation fee in addition to the legal retail price for any drugs sold by VHWs. Since it seemed the PSR management anticipated strong village resistance to the proposals, none were put into effect.

POLICY RECOMMENDATIONS

Initial training and perhaps periodic refresher courses could continue to be financed by foreign aid. Traders who supply weekly village markets could be authorized to sell "VHW packs" consisting of three of the PSR's main drugs and portions of the traditional birth attendants maternity kits. But the Malian health establishment seems to prefer to exclude villagers' access to drugs rather than allow traders to distribute VHW packs.

Griffin, C. (1988). *User Charges for Health Care in Principle and in Practice*. An EDI Seminar Paper, No. 37. The World Bank, Washington, DC.

TOPIC

The author starts by indicating that health services consume valuable resources: equipment, buildings, pharmaceuticals, supplies, and the services of highly trained professionals. How countries pay for and allocate those resources strongly influences their ability to provide health care for their citizens. User fees are a largely unexplored tool for achieving many financial, efficiency, equity, and management goals in the health sector in the developing countries.

This paper considers the economics for user fees for health care (e.g., principles of demand, principles of pricing and revenues, price and income elasticities), what we can expect to happen as a consequence of imposing fees for public medical services (e.g., efficiency of use, signaling, equity), and some of the main administrative issues that are involved, and gives examples of how fees are implemented in some developing countries.

METHODOLOGY

Griffin reports the results of several demand studies in which economists have used survey data on individual, household, and community characteristics; on health expenditures; and on medical care prices to estimate the determinants of medical care use patterns. He discusses price elasticities and income elasticities with regard to findings in other studies.

FINDINGS

The principal conclusion of the analysis is that potential problems can be most easily solved and the benefits of fees most readily captured if countries concentrate first on cost recovery in hospitals. The author states that a hospital-based strategy moves a system toward cost-based pricing in only an approximate fashion. It handles equity issues on an aggregate as opposed to an individual level. For instance, the characterization of urban areas as richer on average than rural areas can be of little comfort to the many poor people living in cities. When hospitals charge fees, even though they are located in relatively well-off urban areas, the plight of patients who cannot pay must be dealt with.

Motivational and subsidy issues are considered in general terms. Griffin explains that in several years, after countries have more experience with user fees, the demand for more detailed information and guidance will be strong, particularly on insurance and equity issues. However, he states that at this early stage in considering a new health finance strategy, a systemwide perspective and the use of fairly blunt policy instruments is probably appropriate.

POLICY RECOMMENDATIONS

Griffin suggests that countries could benefit greatly from policy-oriented research on the effects of fees, estimating costs, planning for insurance, and understanding the relative costs and effectiveness of alternative health interventions. He states that research in health finance is urgently needed, but a desire for more information need not delay prudent changes in policy, particularly if cost-recovery proceeds by first imposing fees in high-level facilities.

Guilkey, D.K., Popkin, B.M., & Akin, J.S. (1989). Prenatal Care and Pregnancy Outcome in Cebu, Philippines. *Journal of Development Economic*, vol. 30, pp. 241-272.

TOPIC

This paper examines the direct and indirect effects of patterns of utilization of prenatal care on both weight and gestational age. Standardized prenatal care visit profiles are used in the analysis of effects of prenatal care utilization. Their model hypothesizes that a woman maximizes her utility, derived from three sets of goods: 1) her infant's health, 2) consumer goods related to infant health and 3) non-health related goods.

METHODOLOGY

The study site is metropolitan Cebu, an area embracing the city of Cebu and rural areas of the central Philippine Island of Cebu. Households were surveyed; the sample consisted of all 3080 women having single births for whom baseline, parity, and prenatal care use information were available. The direct or indirect effects of prenatal care utilization were investigated in a multivariate analysis, which attempted to avoid spurious correlations.

Other factors affecting pregnancy outcome were explored and a simulation of prenatal care effects was derived in order to determine the net impact of changes as they affect the outcomes. The simulation exercise was carried out by attributing to a woman the average characteristics of the sample and then varying the number of prenatal visits, while keeping other variables at their average.

FINDINGS

The determinants of prenatal care use are examined with the focus on the number of visits to each type of care (public, private, and traditional care). The results related to the quality of care and to accessibility are quite different for the urban and rural samples. In urban areas, lack of access to any type of prenatal care provider did not tend to be a problem; while quality of care, as reflected by the type of personnel administering prenatal care, often was. The effects of facility variables were also examined. For the rural areas, women tended to go more often to the public facility if the price of the alternative private or traditional facility was increased. Urban women tended to be less responsive to such price changes.

Public facilities had longer waiting times and this made people tend to move toward more use of private facilities in urban and rural areas. With income controlled, however, it was shown that it was more rational for rural women to wait in public facilities where there was no direct money price for the visits. It was noted that the mean public waiting time was very short in rural areas, so that waiting time probably had a very small impact on use of public prenatal care.

As travel time to traditional practitioners increased, the numbers of urban and rural traditional visits decreased consistent

with the authors' predictions based on theory. In urban and rural areas, increased numbers of private visits were associated with the woman's having more formal education and with having insurance coverage. As the urban woman's assets increased, there tended to be more private and fewer public visits.

POLICY RECOMMENDATIONS

The authors indicate that the model for understanding the underlying and direct factors of prenatal care utilization as well as their empirical results lead to some suggestions for primary health care policy. Improved design of prenatal care to provide more focus on the development of interventions and follow-up care would increase cost-effectiveness, but it would need appropriate means of evaluation as well.

Hakkinen, U. (1991). The Production of Health and the Demand for Health Care in Finland. *Social Science and Medicine*, vol. 33, no. 3, pp. 225-237.

TOPIC

In this study, a structural equation model of determinants of health and the demand for health care in Finland has been developed. The primary aim was to come up with a model which could be used to estimate the relative effects of different factors affecting health and health care utilization in the entire adult population in order to make generalizations for health policy.

METHODOLOGY

The data used in this study are based on the Finnish Survey on Health and Social Security conducted by the Social Insurance Institution of Finland in 1987. Additional data on individual income were collected directly from official tax files. Data on the supply of medical facilities in each municipality, and data on other regional variables were also collected.

The analysis of the data employed the MIMIC (multiple indicators and multiple causes) model, with health as a latent variable, fully characterized by its indicators. The latent variable "health status," was used to control health or "need" in the health care equation.

FINDINGS

The estimated coefficient for the latent variable was highly significant in all the equations. A decrease in health status had the expected effect of increasing the demand for health care. The estimated elasticity of hospital days with regard to the number of visits to doctors was .15. The time cost seemed to be a significant determinant for visits to doctors. The estimated total income elasticities as well as the direct and indirect income elasticities with respect to the number of visits to doctors (.10) was somewhat smaller than the income elasticity with respect to prescribed medications (.19).

Although the socio-economic variables (income and education) had the assumed effect on health, their direct impact was less than the effects of lifestyle variables (e.g., smoking, stress). The direct effect of education on the demand for health was positive. This effect was hypothesized under the grounds that better educated individuals should be more efficient producers of health. All coefficients were positive and significant. Thus, the lifestyle variables had considerable effects on health care utilization. Income, education, and occupation seemed to have almost equal impacts on health, although their separate direct effects were smaller than the lifestyle variables.

POLICY RECOMMENDATIONS

The results of this study indicate that the use of a production function approach is a promising way to analyze the determinants of health. In the future, the approach used in this study should be widened so that health care utilization can also be handled as an input of the production of health and mortality included as an indicator of health. This will improve the understanding of the mechanisms underlying the different factors associated with health and health care utilization.

Hardon, A. (1987). The Use of Modern Pharmaceuticals in a Filipino Village: Doctors' Prescription and Self-Medication. *Social Science and Medicine*, 25 (3) pp. 277-292.

TOPIC

This study describes the use of modern pharmaceuticals in the common childhood illnesses of diarrhea and respiratory infection in a Filipino rural village. The extent to which drug use is related to doctors' prescription is assessed and therapies are evaluated. Some quantitative data are presented. Attention is paid to the social context in which lay people apply self-medication.

METHODOLOGY

Drug use was assessed in a sample of 51 children under the age of 18 months at the beginning of this study. All households with a youngest child in this age group in the village participated in the study (one child per household). The data for this article was collected in a more general study on nutrition and health of infants and toddlers. In a five-month study, health was recorded nine different times, and nutritional status and food intake were assessed monthly. Mothers were asked open-ended questions regarding the health of their child and what therapeutic measures were taken when the child was ill.

FINDINGS

Tuberculosis, pneumonia, malnutrition, and diarrhea are the four most important causes of infant death in the Philippines. Only one out of five preschool children has the right weight for his/her age. Pharmaceutical companies in the Philippines are very active, and 4000 brands based on 600 compounds are advertised. The study found that mothers made the connection between unsanitary conditions and childhood illness as well as showing an awareness of the interaction between their financial situation, sanitary conditions, nutrition, and the health of their children.

In 42 percent of illnesses no medicines were given; in 38 percent children are treated at home (self-medication); only in 20 percent of the cases were professionals consulted, either at the hospital (15 percent) or at the local clinic (5 percent). Doctors usually prescribed approximately 3 medications for each illness, and because prices are high, often not all of the medication was bought by the parents. The example is given of a woman whose child had diarrhea, and she took it to a private doctor who prescribed five medicines. She had to borrow money from relatives to pay for medicines which were in fact not needed. For a case of simple diarrhea the doctor had prescribed a drug to prevent vomiting, an anti-diarrheal, an antibiotic, a multi-vitamin and an analgesic—the total price of the medicines was equal to one week's salary.

The most common way of treating an illness was to buy medicines without consulting a doctor. Only in 14 percent of cases did mothers cite a doctor or nurse as a source of information. Almost half the mothers did not mention an outside source of information at all. Improperly administered drugs can cause a multitude of problems. For example chloramphenicol, a component of the

prescription drug *Dostrol* and the non-prescription drug *Chlorastep*, can cause anaemia associated with damage of the bone marrow, and infants should never be given it unless it is life saving. This study found that these drugs were being applied on doctor's prescription in cases of simple infant diarrhea. In addition, the study found that in total 13 of the 30 cough syrups administered to infants because of coughs and colds were unsuitable for the type of treatment required.

POLICY RECOMMENDATIONS

Lay people need to be given more information on the drugs they are using (not only pharmacological information, but also information on the manner in which the pharmaceuticals are marketed). They should further learn to better judge when a doctor needs to be consulted. More objective information (i.e., apart from the information provided by the drug companies themselves) needs to be made available to doctors.

Hayes, M.V., Taylor, M., Bayne, L., & Poland, B.D. (1990). Reported Versus Recorded Health Service Utilization in Grenada, West Indies. *Social Science and Medicine*, vol. 31, no. 4, pp. 455-460.

TOPIC

This paper describes the demand for health care but discusses the household surveys used by health planners in assessing the determinants of demand and health service utilization in less developed countries. The authors compare two sources of information on health service utilization for diarrhea and other illnesses over a 2-week and 3-month period in Grenada, West Indies—the information provided by health facilities records and that provided by health surveys.

METHODOLOGY

A census was completed in each community in which the name, age, and gender of every person of the household were recorded. In addition, health care utilization records were obtained from every service provider in the study districts.

FINDINGS

Numerous sources of discrepancy between self-reported morbidity and service utilization records must be recognized. To address some of the difficulties associated with interpretation of differences between reports and records, the extent of under- and over-reporting was assessed according to certain criteria of correspondence.

The overall degree of correspondence between reported and recorded utilization was quite low. The actual degree of non-correspondence was as high as 62 percent for diarrhea, and 81 percent for all other morbidity. The cumulative effect of a number of sources of error seemed to be responsible for these rather disappointing results.

POLICY RECOMMENDATIONS

None per se, but the results of this paper raise concerns with regard to the ability of single-round, retrospective health surveys to provide accurate and reliable information regarding the use of health services. Sensitivity analysis should thus be performed in order to estimate limits of correspondence between reported and recorded utilization.

Haynes, R. (1991). **Inequalities in Health and Health Service Use: Evidence from the General Household Survey.** *Social Science and Medicine*, vol. 33, no. 4, pp. 361-368.

TOPIC

The purpose of this paper is to examine variations in self-reported morbidity and health service use in Great Britain between socio-economic groups and geographical areas while allowing for the effect of illness variations.

METHODOLOGY

Most of the evidence was based on mortality statistics, but some analysis of self-reported morbidity and use of health services was presented. The General Household Survey was used for the purpose of this study. The dataset contained information on household composition, accommodation, migration, employment, education, travel, health and other topics. A multistage process was adopted in order to produce representative results over a spectrum of social and geographical conditions. Morbidity variations and use of health services were investigated under these different conditions.

FINDINGS

Self-reported morbidity was found to be a good predictor of health service use, with variations in age and sex taken into account. A clearer social gradient in perceived sickness was observed using social groups based on the material attributes of house and car ownership than using a classification based on the occupation of the head of the household.

Regional differences in health service use were small and not consistent across categories. Weak associations were noted between low service use, the lack of car transport, and rurality. Use of services was depressed in remoter rural areas among those suffering from illness who had no access to a car. None of the differences achieved statistical significance using the chi-square test, and this is attributed to the small rural sample size.

POLICY RECOMMENDATIONS

There were no clear policy recommendations, but the author suggests that there is a certain strength in using the General Household Survey to analyze the utilization of health services in that it offers information about the relationship between the need for health care, measured by morbidity, and the take-up of services. The author therefore invites more secondary analysis of the General Household Survey to demonstrate that there is a wealth of information potentially useful to public policy makers.

Helitzer-Allen, D., and Kendall, C. (1992). **Explaining Differences between Qualitative and Quantitative Data: A Study of Chemoprophylaxis During Pregnancy.** *Health Education Quarterly*, 19 (1) pp. 41-54.

TOPIC

This article demonstrates how qualitative techniques such as cross sectional interviews and chemical tests as well as qualitative ethnographic information were used in a study of chloroquine use by pregnant women in Malawi. The article discusses several methodological issues as well as those dealing with medication use; for the purposes of this abstract I will restrict my summary to the points which directly affect efficiency of service consumption (in this case, the use of chloroquine).

METHODOLOGY

Data taken from the HEALTHCOM and ASCI-CCCD projects, conducted between 1986 and 1988, were used. A background clinic study was conducted, which enrolled 265 returnees attending antenatal clinics at three sites. Each woman was administered a questionnaire which asked about such issues as parity, knowledge of chloroquine, pregnancy history, socio-economic indicators, education. Each woman was also asked for a clean urine specimen for chloroquine metabolic levels, and a finger stick blood specimen for a thick smear.

A community-based ethnographic study was also conducted in a village of 1548 people. Researchers lived in the village for eight months, observing life, mapping and conducting a census, and identifying informants. One-hundred-sixty in depth interviews were conducted with volunteers from target groups.

FINDINGS

Background Clinical Study: Of 265 women on a return visit to the clinic, only 130 women claimed to have taken chloroquine in the last seven days. Of these, only 31 percent (81/265) had urine chloroquine levels compatible with recent ingestion of 5 mg/kg. Only 24 percent said that chloroquine was used to treat malaria, and 26 percent said it was used to prevent malaria (thus providing a potential explanation for the low levels of chloroquine use). When asked, "Are there any medicines which are bad for pregnant women?" 99 percent of the respondents did not mention chloroquine.

Ethnographic Study: The concept of malaria is represented by the term *malungo* and consists of seven subcategories (each with a different etiology and symptomology): mosquitos, rain/wind/and weather changes, hard work, witchcraft, other airborne methods, dirty water or food, and *kulipuka* (a form of *malungo* in children which is associated with *mauka* blisters in the parent).

The clinic tests revealed that 23 percent of pregnant women on a first visit to the clinic (who had not been enrolled in the antenatal chemoprophylaxis program) had urine chloroquine levels compatible with recent ingestion, indicating self-medication for *malungo*. However, the ethnographic study showed

that while all villagers use a combination of cosmopolitan and traditional medicines to treat their ailments, there are specific medicines which are not considered to be good for pregnant women-bitter-tasting medicines, specifically chloroquine, and capsules. Because traditional bitter-tasting medicines are used to cause abortions, community members believe that all bitter-tasting medicines should be prohibited during pregnancy. Capsules are shunned because "one can never tell what kind of medicine (bitter, sweet, strong, or weak) is inside them," said one respondent. In all matters concerning medicine, the advice of the clinic staff is often conflicted with the public's expressed beliefs. The prohibition on bitter-tasting medicines extends to traditional and cosmopolitan medicines alike.

Many women report knowing of neighbors or relatives who had used chloroquine to cause an abortion. Apparently bitter-tasting medicines are used to cause vomiting, which, if severe enough, could lead to a miscarriage.

Respondents had numerous opportunities at different times during the interview to express concerns about chloroquine. The fact that they did not is most probably associated with the setting of the interview, the clinic, and previous exposure to health education about the utility of chloroquine during pregnancy. Respondents answered the questionnaire "correctly" but not with their own opinions. Courtesy and a biased interview setting appear to account for the failure of the survey component to uncover reasons for the lack of the use of chloroquine.

POLICY RECOMMENDATIONS

The use of several research methods at once, such as a survey questionnaire, observational research, and qualitative interviews, instead of only one method, can increase the validity of findings as well as reveal information which may not be evident through the use of only one method.

Heller, P.S. (1982). A Model of the Demand for Medical and Health Services in Peninsular Malaysia. *Social Science and Medicine*, vol. 16, pp. 267-284.

TOPIC

The policy of subsidized medical care suggests a belief that the demand for medical care is highly elastic. Policies aimed at reducing the necessary travel time to a clinic and shortening the average waiting and treatment time suggest a belief that the demand for medical care is also elastic with respect to the time price of care. Given that few studies have ever tested the validity of these assumptions in the context of developing countries, this paper presents a theoretical and econometric model of the demand for medical care, and empirically tests certain issues such as: Is household demand for outpatient and inpatient care sensitive to its costs in time and financial resources? Is the demand for health elastic to income? What factors lead households to seek treatment from traditional medical practitioners rather than from modern medical facilities?

METHODOLOGY

Data was obtained from a 1975 household survey in peninsular Malaysia. The survey's sampling frame was stratified by town size and geographic region. It encompassed households at all income levels.

The theoretical model developed by the author suggests some of the difficulties in estimating normal price and income effects on the demand for medical care. The author also discusses the specification of an econometric model. He indicates that a household medical demand is more complex than that for an individual. It indicates that it is also difficult to differentiate empirically between the demand for "necessary" and "discretionary" curative medical care. He also argues that the theoretical model does not consider the technological and physiological complementarities that may exist between alternative sources and types of medical care. The econometric model focuses, therefore, on the determinants of consumption of particular components of medical and health demand in Malaysia.

FINDINGS

Cash price effects: The results suggest that the demand for outpatient and inpatient care is highly inelastic to cash price. The estimated elasticities of demand range from $-.15$ for public outpatient clinics to $-.04$ for total outpatient demand. In their choice among medical alternatives, consumers are clearly responsive to the relative cash prices of private and public outpatient clinics. The cross elasticity of demand for public care due to changes in the private outpatient prices is approximately $+.15$. The cross elasticities of demand for traditional care due to a change in modern outpatient prices are $.05$ and $.17$ respectively.

Time effects: As with the cash price variable, the probabilities of an outpatient visit, of hospitalization and the total number of outpatient visits are notably unresponsive

to the total time required. The elasticity to time is less than $-.10$. The author indicates that this may simply reflect the fact that Malaysian's rural health network is sufficiently dense that the travel time is not excessive for most citizens. The demand for traditional practitioners is positively influenced by higher time requirements of modern outpatient clinics.

Income effects: The results indicate that income has only a minor impact on whether or not the household seeks medical care or the total quantity of outpatient care consumed by the household. Unlike most other developing countries, in this case, income does not operate as a barrier to access to medical care, but it clearly influences the level and structure of per capita medical consumption, particularly for discretionary medical demand.

Total medical demand, as measured by the absolute volume of outpatient and inpatient consumption appears highly inelastic to cash price, income, or time cost. Consumers are clearly responsive in their choice among alternative sources of medical care to their relative prices. Cross-price elasticities prove significant, not only to cash price but to the relative travel time necessary for the consumption of medical care. Similarly, as income rises, households shift their demand away from traditional practitioners toward modern medical sources of care.

POLICY RECOMMENDATIONS

There were no specific policy recommendations provided by the author.

Hielscher, S. & Sommerfeld, J. (1985). Concepts of Illness and the Utilization of Health-Care Services in a Rural Malian Village. *Social Science and Medicine*, 21 (4), pp. 469-481.

TOPIC

This paper discusses the concepts of illness and the utilization of alternative medical resources in a rural Malian village. The study presents a hierarchy of classification and analyzes the determinants associated with pluralistic medical behavior. Case studies are presented to show how villagers cope with illness.

METHODOLOGY

The authors combined informant-oriented and observation-oriented methods: 1) two weeks of informal interviews and unstructured observation; 2) 5 weeks of partially-structured interviews and participant observation; 3) 2 weeks of partially structured group interviews. The authors deliberately decided not to use questionnaires as "their ability to represent socio-cultural attitudes is limited."

FINDINGS

The health situation of the village is closely related to the living conditions of the villagers. The daily diet is unbalanced, consisting mainly of millet prepared with a sauce (small quantities of rice and meat are bought only on rare occasions). Schistosomiasis and onchocerciasis are prevalent. A multiplicity of medical treatment options are used by villagers:

Self care: home remedies (herbs, chants, aspirin, and vitamins, to name a few) are used especially for diarrhea, wounds, headaches and colds. The rule of thumb is *the worse it tastes the more effective it is*.

Folk medicine: herbalists, magicians, diviners, traditional midwives, religious (Islamic) treatment by marabouts are all consulted for treatment within their specialties. For example, midwives perform cliterectomies and specialize in gynecological and pediatric problems (Note: the government has made it illegal for women to bear their children at home, and they must now utilize a government maternity ward).

Cosmopolitan (Western) medicine: mobile health teams conduct vaccination programs and epidemiological surveys; these teams usually stay in a village for a day or two, but little effort is made to explain their presence to villagers, and thus their actions are not incorporated into local concepts of illness or treatment.

One woman states, "Some doctors came and fastened a board with pictures on a wall. They asked everybody in the village to pass by and look at it. ...Then they wrote down the names of those who couldn't see well. After that they never came back again."

A single hygiene advisor is responsible for the improvement of poor sanitary conditions in the 64 villages of the district. Each village chooses an unpaid aide for these duties. In the village under study here, an 18 year old man was assigned these tasks. He could not effectively change attitudes however because he had very low social status in the village. Villagers said, "You are a young man. You didn't go to school. So what do you know that we don't know?"

There is one aide soignant who runs the dispensaire rural which must serve eight villages (a total population of 2000 people). He has no diagnostic resources and no remedies and can only write prescriptions which must be filled in pharmacies in large cities (Bamako or Baguineda).

There is a maternity ward, and it is assumed that almost all of the deliveries actually do occur there, as the number of births per year in this facility (58 births in 1982) is higher than would be implied by the average birthrate in rural areas of Third World countries (40/1000 per year).

Indigenous Aetiological Concepts:

- ▲ Natural illness is considered to be the most common type of illness. In general, they are thought to be most effectively treated by cosmopolitan medicine.
- ▲ Illness caused by black magic is thought to be characterized by a sudden outbreak of severe symptoms or by an unusual development. These illnesses can only be diagnosed and treated by traditional medicine.
- ▲ Illness caused by spirits is only treated by Islamic or folk medicine.
- ▲ Villagers believe multifarious symptoms of diseases such as schistosomiasis to be separate and unrelated entities, and treat the symptoms accordingly.
- ▲ New concepts of disease causation introduced by the various representatives of cosmopolitan medicine have been confused and combined. For example, tse-tse flies, "bad" food and "dirty" water are all held responsible for the transmission of onchocerciasis.

The authors of this paper conclude that healer-shopping is a characteristic of health care choice. It is based on trial and error. The utilization of health care facilities depends on the actual success of the treatment. Most usage is sequential. They also conclude that service choice is often influenced by economic concerns. For example, towards the end of the rainy season the acute shortage of cash means that cosmopolitan medicine is excluded as a service choice.

POLICY RECOMMENDATIONS

- ▲ Health-care measures must involve more closely the people they affect, especially in primary health care.

- ▲ Health education and epidemiological surveys must be followed up by treatment in order to interest villagers.
- ▲ Horizontal and vertical health-care services must be coordinated in order to provide a more efficient system of community based care.

Hopewell, P. C., Sanchez-Hernandez, M., Baron, R., & Ganter, B. (1984). Operational Evaluation of Treatment for Tuberculosis. *American Review of Respiratory Disease*, Mar; 129(3), pp. 439-443.

TOPIC

Although poorly organized tuberculosis treatment programs usually reduce the rates of tuberculosis-related deaths, in the long run they have been shown to have little effect on rates of disease since many people continue to excrete tubercle bacilli. The authors of this paper suggest that the measurement of treatment outcome is perhaps the most important indicator of overall effectiveness of a tuberculosis control program. As part of a comprehensive review of the National Control Program of Peru, this study evaluates the operational effectiveness of a 12-month treatment regimen for 2,150 patients who had tuberculosis diagnosed in 1980.

METHODOLOGY

To gather data for this study, from January to June 1982 researchers visited 112 Ministry of Health outpatient facilities in 14 of Peru's 17 health regions. Although the facilities were selected in part for their accessibility, they represented a rural-urban mix. In each facility a researcher reviewed the medical records concerning the treatment for tuberculosis and recorded the information on standard forms. The data were tabulated for each clinic, for each health region, and for the entire country. Inaccuracies in the study were minimized by applying a strict set of definitions to interpret the data taken directly from treatment records. Because of the focus on accessible clinics, the data may show better results than would the actual situation. Further, the nonstandardized bacteriologic evaluation may have made the results of treatment appear better than what they really were. Despite some problems with the data, the research team believes this evaluation is the best possible quantification of the results of treatment in Peru and can be used to guide future changes in the treatment program.

FINDINGS

Out of the 2,510 cases reviewed, which represented 32 percent of the total cases reported for Peru in 1980, 1,027 patients (41 percent of the group) abandoned treatment, usually within the first 6 months of the 12-month regimen. Only 1,171 patients (47 percent) completed more than 10 months of therapy and had a presumed favorable outcome. In 6 percent of the cases, treatment failed, and patients received new antituberculosis drugs. Four percent of the patients died while adhering to the treatment plan. In the metropolitan area of Lima, with a population of five to six million, only 25 percent of the 272 patients abandoned treatment. From this difference in overall and metropolitan abandonment rates, the researchers inferred that relatively good results could be achieved where the population was accessible, concentrated, and more stable. The Lima program also benefitted from a more constant supply of drugs, a program that was more "vertically" oriented, with personnel specifically assigned to tuberculosis control activities, and greater availability of medical care in general.

POLICY RECOMMENDATIONS

The study concluded that the high overall rate of abandonment from treatment led to the program's inadequacy. Shorter durations of treatment could help to cut down on this high rate; however, nearly one half of the patients evaluated abandoned treatment in the first 3 months, and 76 percent abandoned within 6 months. Moreover, Peru may not be able to afford the drugs for short term regimens, which cost five to eight times as much as the 12-month program. With shorter durations of treatment, each dose of medication is also more critical to the regimen's success. Thus, for any country switching to short dose regimens, it is necessary to conduct operational evaluations to examine the programs' effectiveness.

Huang, S. (1988). Transforming China's Collective Health Care System: A Village Study. *Social Science and Medicine*, vol. 27, no.9, pp. 879-888.

TOPIC

In 1978, China dismantled and transformed its rural communal health care organization. Using field data collected in 1984-85, this paper examines the changes which occurred in the health care system in Lin Village, Fujian Province, Southeast China. Problems and benefits of switching to a profit seeking health system are identified and discussed, and the finance, training and operation of the village health facility before and after 1978 are compared.

METHODOLOGY

Beginning in 1984, the author spent nearly one year in Lin Village researching the changes in rural China brought about by the introduction of the "Production Responsibility System." During the first half of his stay, he collected data concerning village history, family, economy, policy, rituals, etc.; and during the second half he used questionnaires and results of interviews to pinpoint the qualitative changes in the villagers' value orientations. He was unable to obtain a year by year account of costs and income for the health care system in Lin Brigade.

FINDINGS

In the late 1970s, three barefoot doctors and two paramedics worked in the clinic of Lin Brigade, one of 18 brigades in the Frontline Commune. The three doctors were Mr. Zheng, Ms. Chen, and Ms. Hong. The paramedics' main responsibilities consisted of water purification, public hygiene campaigns, collection of herbs for medical uses and distribution of immunization notices to team families. Normally unmarried girls filled the paramedic positions, since assignments were irregular and poor-paying. Because girls sometimes married out of the village, the team had to retrain new girls for these positions fairly often.

Since the clinic in Lin Village was first established, the brigade took care of most of the health care expenditures with minimum support from higher authorities. In 1969, each brigade member paid RMB \$1 (about U.S. \$1 at that time) per year to the collective as health insurance, which provided diagnosis and treatment of illness at the local clinic, participation in immunization programs, and in-patient services in commune or city hospitals. A large deficit developed from the health program because villagers often visited the clinic for insignificant problems, demanded expensive medicine for minor illnesses, and requested unnecessary hospitalization.

These problems led to changes in the brigade's health program between 1973 and 1984. The \$1 premium was dropped, and instead villagers paid RMB five cents (U.S. 4 cents at that time) per house call or visit to the clinic for registration, diagnosis, and treatment, including medicine. The immunization program remained free of charge. In addition to changing the fee structure, the collective lowered its full coverage of hospital bills to 80 percent, and required patients to pay the remaining 20 percent on their own. With the fees in clinics and hospitals, the Lin Brigade

reduced its subsidies to the health care program and curbed abuses of the health care system. During this switch to a user fee system, the mortality rate of infectious diseases at the national level declined from 116.30 per 100,000 in 1973 to 45.13 per 100,000 in 1982.

Despite this decline, interference and externalities still caused certain cases of disease. For example, one 12-year-old boy contracted polio after his illiterate mother forgot to follow the paramedic's instructions to give a vaccination to the child. Many cases of diarrhea and hepatitis type A also remained difficult to prevent, because villagers still stored their bodily discharges in open pits as fertilizer. Another problem of locally financed health care programs was the difference between rich and poor regions, which had a significant effect on the health of villagers.

In May 1984, Lin Village adopted the final stage of the "Production Responsibility System." As the brigade divided up and leased out all farm land to villagers on a per capita basis, the three-person brigade health clinic became a private operation and the paramedic system was abolished. The original brigade cooperative health insurance and free immunization program remained intact, except for exclusions in coverage of dental care, child birth in the hospital, and blood transfusions. The funds for these came from brigade operating funds, generated from leased out collective properties. Because the brigade no longer subsidized the doctors, under a new standard fee schedule patients paid RMB 15 cents (about U.S. six cents) at clinics for registration and diagnosis, and RMB 60 cents for house calls. Doctors charged additional fees for medicine. Given extra incentives, the doctors also took responsibility for the purification of water and the immunization programs.

Each of the three doctors set up their own clinic and achieved different rates of success. Mr. Zheng's strong reputation in both Western and Chinese medicine helped him to double his number of patients and his income. Ms. Chen was not as successful, but her specialties enabled her to increase her income over the collective system's level. The income of Ms. Hong declined significantly after privatization, due to her relative inexperience.

POLICY RECOMMENDATIONS

The author concludes by attributing the success of China's health care system to its emphasis on prevention over therapy and its effective referral system. No other comments or recommendations are discussed.

Hull, V., Thapa, S., and Wiknjosaastro, G. **Breast Feeding and Health Professionals: A Study in Hospitals in Indonesia.** *Social Science and Medicine*, 28 (4) pp. 355-364.

TOPIC

This article examines the relationship between health professionals' attitudes toward breast feeding and their knowledge and behavior regarding the promotion of breast feeding. The authors find that although the professionals surveyed were positive towards the practice of breast feeding, they were often misinformed with regards to contraindications and issues such as whether a mother should room-in with her infant.

METHODOLOGY

A survey was carried out in 15 teaching hospitals located in major cities, each having at least 1500 newborns a year. Large government referral hospitals serving the general population were chosen. One-hundred and seventy-one Hospital administrators, perinatal care providers, and newly delivered mothers were interviewed concerning aspects of breast feeding management. This article examines only the care givers' attitudes (information about attitudes of mothers is published in a separate work). An observation checklist of several elements of hospital practice supplemented the interview portion of the study.

FINDINGS

Indonesia is aggressively attempting to promote breast feeding (b-f). Breast feeding promotion is now explicitly mentioned in the country's National Five-Year Plan (1982-87). Of the survey population, over 75 percent of the staff providing care to the newborn and/or newly delivered mother have had some first-hand experience with breast feeding (in the case of men, this indicates that their wives have breast fed); however most of them have not breast fed for the 24 months that is recommended by the Indonesian campaign.

Other Findings:

- ▲ 46 percent felt that b-f should be initiated immediately after birth; however only 7 percent actually initiated b-f immediately after birth.
- ▲ 66 percent of providers thought that exclusive b-f without any food supplement is sufficient for infant nutrition for only 3 months or less (the accepted period for exclusive b-f is actually 4-6 months).
- ▲ 96 percent of respondents recognized that mother's milk was better nutritionally than infant formula; however in Indonesia, formula is not usually considered a true substitute for mother's milk and formula was not routinely available in the hospitals in question here.
- ▲ 20 percent of respondents thought that b-f prevented pregnancy during the entire period of lactation.

- ▲ Providers thought that a wide variety of conditions contraindicated the continuation of b-f, for example, tuberculosis (51 percent), infant congenital disorder (46 percent), and mastitis (53 percent).
- ▲ Only 1 percent of mothers and 9 percent of providers appeared to have knowledge of the relationship between frequency of suckling and production of breast milk.
- ▲ 93 percent of providers said that all newly-delivered mothers were routinely provided with information on b-f.
- ▲ Only 77 percent of doctors, 51 percent of mid-wives and 54 percent of nurses thought that mothers and their infants should be placed in the same room.

Although attitudes toward breast feeding are very positive, there are many areas in which knowledge is incomplete and in which wide variation exists in advice given to breast-feeding mothers.

POLICY RECOMMENDATIONS

Providers' reservations about rooming-in are not realistic and will need further clarification if health care personnel are to provide complete support for rooming-in.

It would appear that some providers are not seeing a total picture of early initiation of b-f and continuous rooming-in starting at delivery, and more research needs to be done on why they support practices which deviate from this total approach.

A consistent, well-designed training program needs to be carried out in the modern health sector concerning breast feeding management.

Kanji, N., & Harpham, T. (1992). From Chronic Emergency to Development: An Analysis of the Health of the Urban Poor in Luanda, Angola. *International Journal of Health Services*, 22 (2), pp. 349-363.

TOPIC

This article examines the current public health situation in Luanda, Angola, looking in particular at the use of health services, health strategies, and programs in light of the rapid urbanization undergone by Luanda since independence in 1975. It also considers the impact of the introduction of structural adjustment policies.

METHODOLOGY

This work is based on secondary data from sources such as UNICEF and the Angolan Ministry of Health (MOH). The authors construct their framework based on an overview of the demographic background of the city, nutritional status of the population, and morbidity and mortality rates; existing strategies and programs are also examined.

FINDINGS

An unprecedented and unplanned-for population increase in Luanda, the capital city, has put enormous strain on the social infrastructure of the city. The output of all sectors of the economy, except the oil industry, has fallen since 1975. Although the health budget has remained at close to 6 percent of the total government budget, it has in fact decreased in real terms due to soaring inflation and the decline in the absolute value of the total budget.

Demographic Information:

- ▲ Homes in the city are severely overcrowded and sewer and sanitation systems overtaxed, resulting in threats to the health of the population. 76 percent of households are dependent on fountains or vendors for their water supplies.
- ▲ Over 50 percent of child deaths in the city are nutrition related.
- ▲ Malaria has moved from sixth place to first place as cause of death among children.
- ▲ Rates of death from diarrheal diseases have substantially declined in the last five years; however the author questions the reliability of these figures.
- ▲ Acute respiratory infection (ARI) accounts for 18 percent of all communicable disease.
- ▲ Measles account for 16 percent of all deaths.
- ▲ Rates of maternal mortality are extremely high, and the authors report that figures are underestimations.

Health-Related Behavior:

- ▲ The policy on family planning is geared towards child-spacing and sex education; 82 percent of those surveyed in Luanda did not know of any family planning method.
- ▲ 49.8 percent of all deliveries occur at home, and 35.9 percent are unassisted.
- ▲ 77.1 percent of persons who last fell ill were treated at a health center and 14.8 percent were treated by "private nurses."

Health Programs and Strategies:

- ▲ The primary health care strategy was formulated in an emergency situation (the War for Independence) and has not been subsequently translated into a clearer policy with long term objectives, annual plans and objectives.
- ▲ The MOH is currently divided into "National Directorates" which the authors evaluate as contributing to fragmentation of the ministry.
- ▲ Part of the problem with service delivery (in particular the high number of births at home) seems to stem from the predominantly unit-based approach rather than active outreach work. Midwives and nurses are cited as having a negative attitude towards their work, humiliating mothers and even mixing up babies. These factors contribute to mothers' distrust of the health care system and services on the whole.

POLICY RECOMMENDATIONS

- ▲ An analysis of the structure of the MOH, in order to better coordinate the resources and activities of the individual programs that currently function vertically.
- ▲ The authors disagree with current policy of the implementation of an economic adjustment program (scheduled for 1990), stating that, it will almost certainly have an adverse effect on the health of the poor.
- ▲ The organization and accessibility of services is inadequate. There are problems related to the cultural and economic acceptability and appropriateness of the specific interventions (the authors mention as an example the use of women as unpaid community health workers, when they are already overburdened with responsibilities and have inadequate services at their disposal).

Kendall, C., Foote, D., & Martorell, R. (1984). Ethnopedicine and Oral Rehydration Therapy: A Case Study of Ethnomedical Investigation and Program Planning. *Social Science and Medicine*, 19 (3), pp. 253-260.

TOPIC

This paper presents a case study of ethnopedicine and program planning in Honduras, including a subsequent evaluation of the PROCOSI (Proyecto de Comunicacion Masiva Aplicada a la Salud Infantil) program that incorporates an ethnomedical perspective to promote acceptance and use of home-based oral rehydration therapy (ORT).

METHODOLOGY

This paper is based on the results of the Mass Media and Health Practices (MMHP) Evaluation, a longitudinal study of 750 families in 20 sites in Honduras, conducted concurrently with an ethnographic investigation. Each family was visited monthly over a period of two years by a field worker who asked survey questions, made observations and/or measured the children. The evaluators used a "process model" to evaluate a range of complex outcomes posed by different constituencies. The process model describes a sequential series of steps that must take place in order for the campaign to have an effect on health.

FINDINGS

Only three villages in the region in question have piped water systems; almost all of the villages began latrine programs in 1980 but no villages completed the program and most latrines which have been constructed are little used.

The physician or nurse closest to Los Dolores, the village focused on in this paper, is located at the Ministry of Health (MOH) facility one and a half hours walk away. The MOH has two unpaid representatives in Los Dolores: a village health worker and a representative who works with the health promoter on sanitation projects. Nearby communities provide traditional healers.

Interviews with key informants concerning diarrheal etiology and treatment revealed a number of folk illnesses associated with diarrheal symptoms believed to be causes of diarrhea: 1) *empacho*, a painful condition of the gut characterized by explosive evacuations and flatulence which is treated by villagers with a purgative; 2) *ojo*, evil eye, which is characterized by sore eyes and fever, and is treated by bundling the patient and spraying the body with a number of liquids; 3) *caida do mollera*, fallen fontanelles, caused by improper maternal handling of the infant and treated specific to the ethnoanatomical effect, involving pushing up on the roof of the mouth and tapping on the heels of the inverted child and/or sucking on the fontanelles; 4) *lombrices*, worms, most cases of which are felt to be benign and are not treated by the administration of medicine unless the diarrhea continues too long, when a mild purgative is administered.

The original study could uncover no resistance to the incorporation of ORT to cases of diarrhea attributed to *ojo* or *caida*; however cases of *empacho* are

thought to require the administration of a purgative, and it was felt that parents should resist the use of ORT for this disease and continue to use folk remedies. Almost uniformly, respondents answered that they thought that medical staff could cure dysentery and diarrhea but would be unsuccessful in treating either *ojo* or *empacho*.

The ethnomedical findings of the first study were not (for the most part) incorporated into the PROCOMSI program. The natural outcome of the findings would be the promotion of ORT as a purgative or at least as specific treatment for *empacho*. The MOH however, objected to the support of "purgative" use in any form and did not want to acknowledge the real or perceived existence of *empacho*. The survey also reported very few responses which listed *empacho* as the cause of diarrhea (because *empacho* is believed to be made up of a variety of symptoms and is rarely diagnosed in its early stages, but rather is thought to be so serious that it is not seen as a cause of diarrhea).

ORT was instead promoted as salts that were good for diarrhea and avoided dehydration, the latter a concept unknown to the rural people and laboriously taught in the PROCOMSI campaign, which began in March 1981. The channels of implementation were radio, poster and face-to-face instruction.

In the follow-up survey in Los Dolores, 8 of 24 households were without a functioning radio, only two households contained posters, and only 7 of 24 mothers reported seeing posters. However, all families claimed awareness of the ORT packet and its use; all could name it. Twelve of 24 mothers could describe dehydration correctly (as opposed to 0 of 24 mothers before the campaign). The author concludes that it appears that the promotion campaign had been successfully conducted in Los Dolores.

The larger scale MMHP survey reported 77.5 percent of respondents reported owning a working radio and 38.9 percent of mothers reported hearing a promotion spot the previous day; 46.6 percent reported seeing a PROCOMSI health poster and could describe it. Almost everyone, 92.5 percent, could identify the ORT packet.

Out of 20 cases of diarrhea reported in the previous two weeks in Los Dolores, 11 used ORT. However, eight of the nine untreated cases were attributed to *empacho*, indicating that although the promotion campaign appears to have been successful in teaching the use of ORT in some instances, the non-acknowledgement of *empacho* seems to have negatively affected the overall effectiveness of the campaign.

POLICY RECOMMENDATIONS

An effort must be made to complement the findings of ethnomedical investigations with appropriate laboratory work and case-by-case reviews in order to provide conclusive support for or against ethnomedical findings. In this case it appears that the existence of *empacho* was of relevance to the ORT promotion campaign; however it was ignored because of the Western biomedical bias of the program planners.

Lassner, K., Barnett R. P., Barros Ribeiro, C.A., & Smarzarro, M. S. (1987). Consumer Payment Patterns for Primary Health Care Services in Low-Income Communities of Rio De Janeiro: Implications for Designing Service Financing Schemes. *International Journal of Health Planning and Management*, vol. 2, pp. 89-108.

TOPIC

This study formalizes the process of solving primary health care (PHC) financing problems by proposing and implementing a methodology developed by two of the authors. The Centro de Pesquisas de Assistencia (CPAIMEC), the principal private source of PHC in Rio de Janeiro, collected data on consumer payment patterns for PHC services and on socio-economic conditions within nine low-income communities (LICs) in the Greater Rio de Janeiro Metropolitan Region. These data are interfaced with the methodology to explain why specific financing schemes might or might not be selected for a given community.

METHODOLOGY

A decision system consisting of financing schemes and their constraints was developed by a group of ten people, including CPAIMEC administrators, a nurse and a doctor, physician and nurse supervisors, a social worker and researchers from the Primary Health Care Operations Research (PRICOR) program in Maryland. The "Group of Ten" discussed schemes which were 1) under the control of the CPAIMEC, 2) measurable and 3) easily implemented and evaluated. According to these guidelines, 17 financing schemes were identified, some of which are discussed later in this summary.

The group identified 13 system constraints: value attached to PHC by patients compared with value of other health care services, competition from other health care providers in the community, relative importance to patient of physician provided and non-physician provided care, availability of drugs in the service unit, self-medication habits of consumers, availability of equipment in the units, degree of consumer's awareness of CPAIMEC service units, relationship between CPAIMEC service staff and clients, consumers' and community leaders' willingness to pay, degree of community organization, political problems among community leaders and consumer groups, consumers' ability to pay, and cost of mobilizing a financing scheme.

The objective of the decision system was to maximize community coverage by PHC services. The Group of Ten, as well as consumers and professionals in the community, evaluated the 17 community financing schemes in all nine LICs according to the following impact incidence matrices: preferences, susceptibility to problem constraints, and support of the problem objective.

FINDINGS

After evaluating the impact incidence matrices, the schemes were ranked for all nine LICs (see Table 1). The rankings were used to design the financing strategies as they would actually be implemented in each LIC. In summary form, the paper presents reasons why the top eight schemes in each LIC were chosen.

Examples of these reasons as they appeared in the paper are shown in Table 2.

POLICY RECOMMENDATIONS

When comprehensive data exists as they do in Rio de Janeiro, specific refinements to the methodology or its output can be made that will likely improve the final solution. Such improvements are made by allowing for greater specificity in the final strategies with respect to which types of visits, services and drugs should be charged for or not charged for. For example, data for the scheme "direct payment for selected services" provided details as to which services should have been included in the scheme (injection, blood pressure check, Pap smear, and laboratory examinations). Data can also aid in the specification of where or where not to implement certain schemes. Although the methodology rejected the scheme "ad hoc community fundraising," the decision was refined to allow implementation in Borel and Bispo.

It is also noted that the decisions/further specification regarding the original financing schemes usually reflect current patterns of behavior within the communities. In order to identify alternative solutions, further research should involve experiments with schemes that are not reflective of current consumer behavior. Other elements crucial to further research are the issues of 1) increased efficiency of proven effective decision methods and modes, and 2) the importance of consumer/community values and preferences.

TABLE 1. FINAL RANKINGS OF FINANCING SCHEMES, ALL LICs

Financing scheme	Low-income community								
	Senador Camara	Borel	Dendé	Parada de Lucas	Prazeres	Vila Aliança	Vila Kennedy	Barreira do Vasco	Bispo
Cleaning U/MP	5	3	3	1	2	3	1	2	1
Payment, U/MP utility bills	2	2	1	2	3	1	7	1	8
Physical maintenance of U/MP	4	1	2	3	1	2	4	4	2
Office/clinical supplies	6.5	4	8	5	6	9	9	10	5
Paid promoters	16	14	16	16	11	16	15	15	14
Volunteer promoters	13	16	14	13	8	13	14	13.5	12
Use of community health workers	15	17	15	15	14	17	17	17	13
Registration fees	3	11	6	4	10	6	2	7	6
Payment, selected services	1	8	11	6	9	4	3	3	4
Payment, all visits	11	12	10	9	17	11	10	13.5	16
Payment, selected visits	9	9	4	11	13	5	5	5	9
Payment, all drugs	8	13	5	8	12	7	8	9	10
Payment, selected drugs	6.5	5	9	7	7	8	6	6	11
Community association fees	14	6	12	17	16	14	11	11	17
Ad Hoc fundraising	12	7	7	10	5	10	13	8	3
Friends of Community	10	15	13	14	4	12	12	12	7
Health cooperative	17	10	17	12	15	15	16	16	15

TABLE 2.

I. Scheme: Direct payment for selected types of visits and services

A. Decision:

Do not charge for most types of PHC visits and services.

Underlying condition:

Consumers do not pay for most types of PHC visits and services.

Supporting data:

- a) Few women pay for selected services, across LICs, by household income (although the percent rises with income).
- b) Few women pay for most services, across LICs, although exceptions exist.
- c) Few children (i.e. their parents) pay for selected services, across LICs, by household income (although percent rises with income).
- d) Few children pay for most services, across LICs.

B. Decision:

Charge for a few, selected types of PHC visits and services (e.g., administration of injections, blood pressure checks, pregnancy tests, Pap smears, laboratory examinations).

Underlying condition:

Communities/consumers will actively seek certain forms of care.

Supporting data:

- a) Types of providers most desired by women and for children, across LICs, are the general practitioner and pediatrician, respectively. The percentage of women seeking providers, by type are: general practitioner 54.2 percent, dentist 24.2 percent, obstetrician/gynecologist 19.9 percent. The percentage of children seeking providers, by type are: pediatrician 62.9 percent, dentist 24.0 percent.
- b) Higher than average percentages of children pay for administration of injections and laboratory examinations, within some income groups, across LICs.
- c) Higher than average percentages of children pay for administration of injections and laboratory examinations, across LICs and household income levels.
- d) Higher than average percentages of women pay for administration of injections, laboratory examinations, blood pressure checks, pregnancy test, and Pap smears within some income groups, across LICs.
- e) Higher than average percentages of women pay for administration of injections, laboratory examinations, blood pressure checks, pregnancy tests, and Pap smears across LICs and household income levels.

C. Decision:

Charge for family planning visits, but only in one LIC-Villa Kennedy. In Villa Alianca, charge for the annual family planning visit only.

Underlying condition:

The public sector does not provide family planning services. Consumers would likely be willing to pay for such services. In Villa Kennedy, there has been a successful history of charging for family planning visits.

Supporting data:

- a) Larger than average percentages of women who use family planning-related services are now paying for them.
- b) The major contraceptive method-the pill-is obtained primarily from the private sector: 81.0% from pharmacies, 13.0% from the CPAIMC hospital or a CPAIMC U/MP.
- c) Of those women using contraceptive methods, the vast majority pay for them: pill 84.0%, tubal ligation 51.0%, others (IUD, condoms, etc.) 32.8%.

II. Scheme: Ad hoc community fundraising

A. Decision:

Implement this scheme, but only in two communities-Borel and Bispo.

Underlying condition:

Borel possesses a well-organized community association with strong leadership. Bispo has had several successful attempts at ad hoc fundraising in the past. No specific survey data exist to support this anecdotal information.

Makinen, M. (1981). *A Benefit-Cost Analysis of Measles Vaccination in Yaounde, Cameroon*. Center for Research on Economic Development, University of Michigan, Discussion Paper No. 96.

TOPIC

The author compares the economic benefits and costs of a measles vaccination program conducted in Yaounde, Cameroon, between 1971 and 1976.

METHODOLOGY

Estimating the economic benefits of a disease control program involves estimating the annual number of disease cases prevented, which is the difference between the number of cases with the program and the number without the program. For a transmissible disease like measles, the number of cases prevented will exceed the number of effective vaccinations, because "each child made immune through vaccination reduces the number of infectious children in the population, hence reduces the chances of susceptible children contracting the illness." For the Yaounde population, the numbers of cases with and without the program are estimated with a modified Reed-Frost epidemiological model.

FINDINGS

The vaccination program is found to have a benefit-cost ratio of 23.3 to 1.

POLICY RECOMMENDATIONS

"This result suggests that there may be a broad underallocation of funds to health projects, so that wider application of benefit-cost analysis to health programs may result in bigger health budgets, hence better health and a net social gain."

Maynard, A. (1979). Pricing, Demanders, and the Supply of Health Care. *International Journal of Health Services*, vol.9, no. 1, pp. 15-25.

TOPIC

The purpose of this paper is to identify and analyze the role of the demander in health care markets, to discuss the use and effects of the price mechanism in the health care market, and to examine the market (liberal) and the collectivist (needology) mechanisms for regulating the supply and demand of health care.

METHODOLOGY

This study is not a household survey, but it provides a list of issues concerning the effects of pricing on consumer demand and draws on the available empirical evidence to present estimates of price elasticity, cross-elasticity, and other characteristics of the choice process.

In the first part of the first section, the familiar neo-classical paradigm is developed to show that insurance with coinsurance variables might lead to an efficient allocation of resources. This conventional wisdom was then challenged because that demand might be determined not by the patient-demander but by the physician-demander in an agency context.

In the second section, the effects of pricing on patient-demanders were examined with reference to available empirical evidence. It was then argued that if the use of the pricing policy instrument was aimed at curbing expenditure inflation and increasing the efficiency of resource allocation, it might be ineffective in the physician-demander agency role.

The last section analyzed briefly the "needologist" and the liberal perspectives of the health care market. These perspectives had been developed to only a limited extent, particularly in the liberal case. The "needologist" favors the explicit measurement of "need" and resource allocation determined by "need" criteria which would be established by some political mechanism. The liberal favors consumer sovereignty as the ultimate defense of individual freedom, but he would recognize that consumption externalities and the physician-patient agency relationship make some intervention in the market inevitable, at least in the short run.

FINDINGS

The conclusion which is tentatively drawn, after analyzing some studies which used proxies for prices, is that the high (up to -1.4) estimates of price elasticities of demand for health care reported in the early 1970s have been replaced by low estimates in more recent years. In part, the author indicates that this is due to a greater sophistication in the formulation and estimation of the relevant equations.

The author states that there is evidence that the introduction or extension of pricing will have a effect on the level of demand for the good or service priced (as price rises, the level of demand falls generally), the level of demand for substitute types of medical care whose prices are unaltered (as the price of one

service rises, the demand for the other unpriced or lower-priced substitute service rises generally), and the level of demand of different socio-economic groups (the imposition of prices worsens the already unequal distribution of health care expenditure benefits). Furthermore, those in medical "need" may reduce their demands, "waste" may or may not be unaffected, and time-price elasticities of demand may be as large as price elasticities.

POLICY RECOMMENDATIONS

The author indicates that the powerful collection of conclusions from the limited quantity of empirical evidence calls for more careful use of price mechanism as a policy instrument. It may thwart the attainment of policy objectives. It is also clear that a lot more data gathering and analysis are necessary in order to improve the understanding of the effects of pricing.

Mckee, L. (1987). **Ethnomedical Treatment of Children's Diarrheal Illnesses in the Highlands of Ecuador.** *Social Science and Medicine*, 25 (10), pp. 1147-1155.

TOPIC

This paper proposes a model of the worldview that specifies the factors that condition illness or health and a traditional taxonomy that relies on certain criteria to categorize three classes of diarrhea. These classifications determine whether ethnomedical or bio-medical treatment will be used to "cure" a child.

METHODOLOGY

The primary data used in this article are derived from content analyses of ethnographic interviews recorded during participant observation in the households of 43 mothers with small children living in five highland communities in Ecuador. Video tapes of mothers and their interactions with local female folk healers also provide an additional information source.

FINDINGS

Mothers' examination of a child's stool is governed by a folk taxonomy which helps determine whether or not a doctor will be consulted. There are three distinct classes of diarrhea, one of which is "for the doctor" and two of which are "not for the doctor."

1. *Infeccion* is considered to be marked by runny watery stool and high fever. It is believed to be caused by contaminated food or by consuming dirt. This belief that *infeccion* has a natural cause is a change from traditional beliefs where dirt and dirt-coated objects were considered powerful objects and were used to heal. This marks a change in belief about diarrhea, but only with regard to this particular type of diarrhea. The traditional way to treat this was to restrict fluids; however now the child is brought to the doctor for treatment.
2. Humoral imbalance is considered another cause of diarrhea, and is classified as "not for the doctor." Imbalance in the hot and cold humoral system is believed to be a cause of this "foamy" diarrhea, which may also contain mucus. For instance, when a child sits bare bottomed on a cold floor, the cold is believed to be sucked up the anus and thus cause illness; this is treated by warming the child's bottom and stomach in order to drive out the cold.
3. Supernatural attacks such as the evil eye are considered to cause curdled diarrhea. Ritual cleaning must take place before any cure of the diarrhea will be considered effective. "Cleaning" involves hitting or rubbing the child's body with strongly scented objects such as capiscum peppers. The *mal* can also be lured away by presenting it with another living being, such as the

fertilized embryo of a chicken egg, which is even weaker than the sick child. The natural cannot combat the forces of the supernatural, and thus to visit a doctor before ritual cleaning has been performed could imperil the child further.

It appears in fact that most of the diseases that fall into the third category are common ills of the region, caused in some cases by consistent parasitic infection, which cannot be successfully and definitively treated by bio-medical procedures and will in fact respond favorably to the passage of time. Thus the reason to avoid doctors in the case of supernatural infection may in fact be based on the mothers' knowledge that doctors cannot help. The symptoms of the most fatal type of supernatural infection correspond with the symptoms of severe malnutrition, and the fact that doctors treat this with vitamins whose cost is often out of reach of poor people indicates that their unwillingness to consult the doctor is linked to this issue of pricing.

POLICY RECOMMENDATIONS

Health clinics might have more success in treating badly malnourished children if emphasis were placed not on prescriptions but on nutritional counseling and recommendation of traditional foods high in protein and nutrients and affordable for the family, such as quinoa, amaranth, barley, and local fruits.

Medeiros-Neto, G.A. (1988). Towards the Eradication of Iodine-Deficiency Disorders in Brazil Through a Salt Iodination Program. *Bulletin of the World Health Organization*, 66(5), pp. 637-642.

TOPIC

This paper discusses the results of a salt iodination program initiated in 1978 by the Ministry of Health in Brazil.

METHODOLOGY

The two groups responsible for implementing the new program were the Instituto Nacional de Alimentacao e Nutricao (INAN) and the Superintendencia de Campanhas de Saude Publica (SUCAM). In November 1982 the INAN appointed people to coordinate the program, and in 1983 it proposed legislation in order to reduce the prevalence of endemic goitre and eliminate endemic cretinism from the country.

FINDINGS

Iodine deficiencies remained a serious public health problem in Brazil until the late 1970s because of the failure of a salt iodination program established in 1953. Potassium iodide was not supplied to all salt producers; the iodination of salt was erratic; and much of the salt consumed in the endemic areas was not iodinated. By 1974 the iodination program had further deteriorated because of the uncertain economic position of salt producers; lack of awareness, financial support, and control of the health authorities and of the salt producers; and use of unreliable iodinating procedures, including unsuitable equipment and untrained personnel. Rural areas faced the greatest incidence of goitre, in part because of the common practice in these areas of using agricultural salt for human consumption.

In 1978, the Ministry of Health adopted a new plan to eliminate endemic goitre and other diseases caused by a lack of iodine. Beginning in January 1983, potassium iodate was distributed, free-of-charge, to all salt mills and an iodate dosing spray was supplied without cost to small salt producers. The Ministry of Health also assured the iodination of salt intended for agricultural use, and set up regional laboratories for determining the level of iodine in salt. Inspectors made regular visits to the salt mills, and samples of salt from commerce and from the producers were analyzed. The technical group of the program provided technical information and other assistance to salt producers.

The program first took place in the salt-producing states of Rio Grande Do Norte, Rio de Janeiro, Rio Grande do Sul, Sao Paulo, Ceara, and Parana, which together account for about 90 percent of Brazil's refined and milled salt production. It expanded to all the salt-producing states in the country, and covered a total of 172 refineries and milling plants in 50 communities. In 1983 about 90 percent of the salt produced in the country contained iodine, and by the end of 1986 this percentage increased to 99.9 percent. Also, in three areas of the country with endemic goitre, the urinary excretion of iodine increased from an average of less than 40 µg iodine to 125-38 µg iodine per g creatinine.

POLICY RECOMMENDATIONS

The 1983 salt iodination program in Brazil was a complete success. It could serve as a model for other countries with a high prevalence of iodine-deficiency disorders.

Mills, (1991). Exempting the Poor: The Experience of Thailand." *Social Science and Medicine*, vol. 33, no. 11, pp. 1241-1252.

TOPIC

This paper analyzes Thailand's Free Medical Care Project, which offers free care at fee-paying facilities for those classified as poor.

METHODOLOGY

By examining data from the Socio-Economic Survey of 1975/76 and the Budget of the Under-Secretary of the Ministry of Public Health (MOPH) from 1980, this study illustrates the size and geographical distribution of the group eligible for free care and measures the extent to which the geographical distribution of the budget matches the geographical distribution of the poor. The budget of the under-secretary of the MOPH provides information on money allocated between provincial hospitals, district hospitals, and provincial health offices. Eighteen percent of the budget allocations have not been analyzed, in instances when one budget covers several institutions in different provinces or when an institution has a national instead of a local role. In order to measure geographical distribution of the budget, this study uses indicators which measure total allocation per capita by changwat, allocation per capita of the population defined as poor, provincial hospital allocation per capita, and allocation per health center/midwifery center.

FINDINGS

The Free Medical Care Project was formed as part of Thailand's fourth Five-Year Plan, 1977-81, in order to: 1) promote medical care equity among the people; 2) improve the health status of the poor especially in rural areas; 3) pave the way for National Health Insurance for the poor; and 4) encourage the poor to regard health services in a positive manner. The project's three main programs included free medical care, mobile health units and radio communications. Free medical care was the focus of this paper.

Initially, eligibility cards for free care were issued in Bangkok to those classified as poor. This system was dropped, and in its place hospital directors decided who qualified for free care on the basis of poverty. According to 1980 MOPH regulations, those eligible for free care included single people with an income of less than B1,500 a month, married couples with a total income of less than B2,000 a month and their children under 20, and over 20 if they had mental or physical disabilities. On the basis of this criterion, 68 percent of Thailand's population and 80 percent of its village population were classed as poor in 1975-76. Of those defined as poor, 84 percent lived in rural areas.

Further analyses of the socio-economic survey show that urban areas had significantly higher incomes than rural areas, and that the northeastern region had the highest percentage of its population classified as poor and the highest total number of poor. The survey also reported that the per capita consumption expenditure of village houses was 50 percent of that reported by households living in municipal areas. The northeast recorded the

lowest level of consumption among village houses, as well as the highest size of household (6.0 persons), the highest proportion engaged in agriculture (76.8 percent), the highest number of earners per household (3.2 earners), and the lowest levels of available facilities (electricity 5.8 percent, piped water 0.4 percent).

The World Bank defined the poverty line as B150 per month per person in rural areas, and B200 per month per person in urban areas in 1975/76 prices. Based on this criterion, 25 percent of the population were classified as living in absolute poverty, of whom over 50 percent live in the northeast.

According to indicators used to measure geographical distribution of the budget, regions with the greatest numbers of poor people received relatively less of the Free Medical Care budget. Based on the absolute poverty measure, the ratio between patients receiving free care and the number of poor was highest in the central region (1.88) and Bangkok (1.29), and lowest in the northern region (.65) and the northeastern region (.73). Allocations were based on the number of poor people seen by each health unit in the previous time period. The number of poor attending the health units depended on factors such as physical accessibility, popularity of the health unit, and availability of alternative sources of care.

Different provinces also applied different criteria to determine who should have received free treatment. Although 260 patients received free care per 1000 population in the northeast, compared to 167 out of 1000 in the north in 1978, the north was allocated a larger budget per capita than the northeast in 1980. Out of the inpatient and outpatient statistics used to formulate utilization statistics, inpatients received a higher allocation. Thus inpatients may have made up a greater proportion of total free users in the north. The Free Medical Care Project's system of allocating funds based on the numbers of poor treated excluded patients who did not attend health units and patients who did not wish to declare themselves poor. This study could not determine the extent to which this happened.

POLICY RECOMMENDATIONS

The problem in Thailand is devising a budget allocation system and care delivery system that will reach those in poverty. Potential amendments to improve the present system include the reintroduction of cards which must be shown to obtain free care, the creation of income criteria sensitive to the size of the family, the adoption of income criteria which define those in absolute poverty, a concentration of resources for free medical care in the north and northeast, and an outreach of health activities to rural areas. The government has attempted to reintroduce the card system; however, many poor do not receive cards due to abuses within the distribution system.

Making particular parts or types of health service free was also proposed to improve the health care system, especially in the northeast region. For example, Khon Kaen Province was able to make all treatment free without being overburdened by an increased demand for health services.

Moens, F. (1990). Design, Implementation, and Evaluation of a Community Financing Scheme for Hospital Care in Developing Countries: A Pre-Paid Health Plan in the Bwamanda Health Zone, Zaire. *Social Science and Medicine*, vol. 30, no. 12, pp. 1319-1327.

TOPIC

This study uses the application of operations research to develop a community financing scheme for hospital care in Bwamanda, Zaire. It attempts to construct a scheme that will yield the highest income for the Bwamanda Hospital and still increase the level of access to hospital care for all people. The implementation and effects of a pre-paid health plan are studied, and the financial sustainability of the Bwamanda Hospital is discussed.

METHODOLOGY

This study applies operations research to further define and analyze the financing problem, develop a model to solve the problem, and assess the validity of the solution. Information is obtained for this process through discussions with providers and target groups. In order to judge the plan's effects on equity, a survey was carried out involving members and non-members of the pre-paid plan.

FINDINGS

The Bwamanda rural health zone, one of 300 health zones in Zaire, consists of a 138 bed hospital and 20 health centers for its 120,000 inhabitants. Charging a fee per episode of illness enables most of the health centers to finance their operating expenses. Referrals from the centers are required for hospitalization.

In 1984 the hospital faced increasing medical costs due to inflation and the need to improve quality of care. Because of its uncertainty over external funding as well as Zaire's decentralization policy, at this time the hospital began to identify and explore other methods of financing to ensure its financial autonomy. The medical staff decided fees could not be raised, however, since increased prices could cut accessibility and equity. Many patients referred from clinics were already waiting several days before seeking care in order to find the necessary funds.

After discussing the problems in the system, the medical staff identified seven possible financing schemes, including flat fee admission, individual fee for services, fixed fee per admission and additional charges, pre-payment donations, insurance, and employer-based health plans. The key factors used to judge each scheme were ability and willingness to pay, political acceptability, and social acceptance. Since more than 90 percent of the population were farmers, the ability of people to pay depended on the seasonability of crops. In order to increase political acceptability, several national and regional workshops were held for health zone managers. The social acceptance of any plan normally depended on the person's ability to pay. Support from extended family helped families to pay for unexpected expenditures. For larger expenses, many people

had begun to practice "likelemba," a system in which groups of 2-4 wage earners alternatively received a part of the salary of others.

Out of the seven financing schemes, insurance options were excluded because of the difficulty in controlling formal insurance outside the health zone. Employer-based health plans also would not work due to the large number of self-employed farmers. The medical staff decided only prepayment schemes could lead to a significant improvement. The proposed payment plan consisted of a 20 percent co-payment, no deductibles, cash payments, an annual collection period, family as the unit of membership (but individual premiums), and the health zone as organizers with active involvement of the community at all stages. The plan did not cover the cost of services at the health center.

The plan's cost recovery goal was to raise enough patient revenue to cover total operating cost. Health center personnel and village representatives collected membership premiums during the annual enrollment period of one month. The collected revenue was used for short-term investments that would yield at least the same interest as offered by commercial banks.

After aiding in the plan's design, the chief nurses and community members seemed enthusiastic about its implementation. The monthly village meeting received information about the advantages and price differences in the new plan, and the strong solidarity of the extended family helped to explain the basis of the new risk-sharing system. Because of the limited management capacity in the Bwamanda health zone and the extra cost which additional management would have required, a separate administration was not necessary for the pre-paid plan.

During the two years after the plan began, cost recovery doubled. The short-term investment policy offset the effects on inflation, which ranged from 40-60 percent during 1986-87. Since 1987 the population has paid for more than 80 percent of the operating costs. Membership rates rose from 32,614 enrollees in the first year to 80,495 enrollees two years after. Nearly 70 percent of the zone's self-employed farmers are presently members of the pre-paid plan.

In a comparison of the utilization rates of members and non-members, it was found that in 1986, 27.5 percent of the population (members) accounted for 35.6 percent of the hospitalizations, while in 1987, 47.4 percent of members were responsible for 59.4 percent of the hospitalizations. While adverse selection could have led to the higher utilization rates by members of the health plan, most likely moral hazard did not significantly influence utilization due to the strict referral process.

POLICY RECOMMENDATIONS

It seems that the health zone is appropriate for the organization of a geographic pre-paid plan. Further research is needed, however, to determine the extent to which people are able and willing to pay for hospital recurrent and capital costs. Implementing a system of differential fees for the poor may help to increase equity. The author concludes that it could be useful to examine whether a pre-payment scheme would also benefit health care at the primary and tertiary levels.

Molyneaux, J. & Diman, T. (1991). *Impacts of Contraceptive Price on Indonesian Contraceptive Choices*. Unpublished Manuscript Prepared for the Department of Population Planning and International Health, University of Michigan, Ann Arbor, Michigan.

TOPIC

The purpose of this paper is to demonstrate the use of variations in prices of contraceptives as observed in the 1987 National Indonesian Contraception Prevalence Survey (NICPS) in order to evaluate how the program may best reallocate family planning resources in favor of those who require continued public support.

METHODOLOGY

Using the 1987 NICPS, the authors present estimates of the impact of contraceptive prices on contraceptive use decisions. The authors indicate that this information will help identify the characteristics of potential users who are more likely to be successful in the contraception program. In their analysis, the authors evaluate how variations in community prices of each of the contraceptives is associated with differences in contraceptive use which are not directly attributable to the other characteristics of individual respondents or their communities.

Multinomial logistic regressions are performed in order to estimate the impact of the explanatory variables on the probability of a woman's choosing a certain method of contraception. The authors also estimate the probabilities of use at different prices by increasing the prices and recalculating the probabilities. With this method, the authors were able to calculate the slopes of the demand functions with respect to the prices of different methods (pills, intra-uterine devices, and injectable contraceptives).

FINDINGS

The doubling of pill prices would influence the probability of using other methods. The most strongly influenced method is the IUD. The net effect on total contraceptive prevalence is less than the direct impact on pills, or a .8 percent reduction in total contraceptive prevalence. The reduction in both pill and overall contraceptive use happen to be very large, with pill prevalence dropping to less than 40 percent of its initial value, or from 13 to 5 percent.

The price elasticities for pills were the lowest "own" price elasticities of the three measured. The demand for injectable contraceptives was the most price sensitive of those for any of the three methods (injectable elasticity calculated from the effect of a price doubling=.488). There was a strong apparent complementarity of pills and injectables, as the increase of injectable prices appeared to induce a decrease of .6 points in pill utilization from 13.3 to 12.7 percent. It was suggested that an increase in all prices to their private sector levels would reduce contraceptive prevalence from 43 percent to only 29 percent. Lastly, dramatic declines in prevalence among the low education group were observed, while prevalence among the high education group stayed more or less the same.

POLICY RECOMMENDATIONS

Following these measures of demand elasticities which differed according to the socio-economic status of the household, it is suggested that a price reform should recognize the differential price responsiveness of different socio-economic groups. The major reason is to prevent a dramatic reduction in contraceptive prevalence among the low education group.

Morgan, L. (1990). International Politics and Primary Health Care in Costa Rica. *Social Science and Medicine*, 30 (2), pp. 211-219.

TOPIC

This paper uses a historical and political-economic perspective to explain why the Costa Rican government failed in its efforts to enhance community participation after Alma Ata.

METHODOLOGY

Prior research and literature by various scholars regarding the economic and political evolution of Costa Rica (CR) is used as the basis of this article. The author examines the role of international agencies and their influence on the Costa Rican health service delivery system as the framework for the work presented here.

FINDINGS

The author contends that one of the primary points of primary health care (PHC) strategy, community participation, is threatening to some governments which might be inclined to attempt PHC provision. In the case of CR, the ruling classes have been able to use the rhetoric of participation without actually allowing greater mass participation in government decisions.

Three aspects of CR history are pertinent here. 1) Efforts to improve health in CR have often been undertaken at foreign initiative with foreign funding (in particular to improve US controlled concerns—the United Fruit Company, and military and political stability/control of the region); 2) mandatory compliance was the rule; and 3) efforts were seen as a means to "make the jungles fit for economic exploitation"; 2) CR's health services did not support anything resembling community participation until the UN's sponsored community development movement in the 1950s; 3) Community participation did not become a central component of the health programs until the 1970s.

Early international efforts were an attempt to keep the population politically stabilized, and these programs fostered paternalism and dependency by providing social services in exchange for support at the polls.

Contrary to the US government intentions under Title IX (which was designed to encourage democracy in developing nations), community participation came to mean political turmoil to many Third World governments. International agencies helped let the notion of community participation die by not actively supporting it when it came under fire from individual governments.

When community participation was instituted in CR in the late 1970s, it was once again seen as a political tool by President Rodrigo Carazo, and it was abolished in 1982 by the new president, Luis Alberto Monge, as the result of yet another political agenda. Each group perceived community participation as potentially, if not actually, damaging to its interests.

Costa Rica's rural health programs have always stressed community obedience over community involvement. Community participation has been based on international, then on national edicts, rather than on grass roots efforts.

Mull, D. (1991). Traditional Perceptions of Marasmus in Pakistan. *Social Science and Medicine*, 32 (2), pp. 175-191.

TOPIC

This article examines mothers' perceptions of the cause and appropriate treatment of serious malnutrition (marasmus) in squatter settlements of Karachi, Pakistan. Virtually all the mothers interviewed said that they had seen the disease, but almost none of them attributed it to insufficient intake of nutrients.

METHODOLOGY

The author interviewed 150 mothers of children under five-years old, clinically identified as malnourished. A variety of ethnic and religious groups were represented. Mothers were shown a photograph of a child with third-degree malnutrition and were asked what could be wrong with the child.

FINDINGS

Virtually all mothers said that they had seen the condition, calling it *sukhay ki bimari* (skb) which translates as "the disease of drying and thinness." The majority said that diarrhea predisposed a child to skb and vice versa, but only 3 of 150 women said that diarrhea and/or lack of food could themselves cause the condition.

The cause of skb was said to be contact with a woman with a marasmic child or a woman in a state of ritual impurity. Another source of the disease was that a malevolent spirit transmitted the disease to the child.

The disease is considered to be highly contagious and once a child has been diagnosed by family members or friends as having skb, it is often hidden away in order for the family to avoid the stigma associated with the disease and from spreading the disease to other children.

Mothers stated that giving a marasmic child food would not improve its condition, and in fact could make it worse. Thus nutrients were often withheld from children with diarrhea caused by marasmus. Religious cures, such as amulets, prayer, and pilgrimages to shrines, were cited as the most effective cure.

The perceptions of marasmus by squatter camp women had a direct effect on their utilization of "western" health services as well. One woman claimed that her child caught the disease from the scales used by the doctor to weigh her child, and after that refused to have her children weighed. Another woman said she ran away from a clinic line after she saw another woman waiting there with her marasmic child, fearing her own child would become infected. One woman stated, "Doctors say to give more food in these cases, but we don't believe it."

Doctors at the clinic site stated that they had no idea that their methods of cure were looked on with suspicion, as well as blatantly ignored, by mothers, and did not know that the women believed the disease to be caused by spirits and

not by malnourishment. Nurses were better informed regarding the beliefs of the mothers (the author attributes the difference in knowledge between doctors and nurses to the fact that doctors are almost exclusively from upper class backgrounds, whereas nurses come from low and middle-class homes).

Mothers said that not only was it difficult for them to care for a severely ill child, but that hospitals had released children after only a few days, saying that they were too difficult to feed. Few mothers seemed conscious of the strong correlation between feeding and growth and thus did not make the connection between their children's illness and its malnourishment. In cases where mothers were bottle feeding their children, they were noted as using only one-third to one-half as much powder as they should, and were not giving enough bottles per day for their child's requirements. Cost and a lack of education regarding proper use of formula were cited as the cause of improper feeding techniques.

The author cites the difficulty of the choice faced by a mother with few or no resources and five children, one of whom has marasmus. She states that it is understandable that the life of one already ill child may have to be sacrificed for the survival of the family as a whole.

POLICY RECOMMENDATIONS

Similar studies need to be carried out in other parts of the world to gauge women's (mis)perceptions of the causes of malnourishment. If the phenomenon is found to be widespread, as the extensive literature cited in this article suggests, interventions should be designed.

The author notes the difficulty of recommending policy changes in order to reverse trends in malnutrition. Malnutrition is hard to gauge, and its causes go right to the heart of political, social, and economic inequalities present in a society, making the problem difficult to address and even more difficult to solve. It is also difficult to quantify progress; one cannot easily point to the number of malnutrition deaths averted in the same way one can point to the number of vaccinations administered.

Musgrove, P. (1986). What Should Consumers in Poor Countries Pay for Publicly-Provided Health Services? *Social Science and Medicine*, vol. 22, no. 3, pp. 329-333.

TOPIC

Given some strong assumptions about the restricted role of prices, the short-run pressures on the public health system, the welfare function implicit in ministries of health's actions, Musgrove explains that it is possible to derive conditions for the optimum level of prices or fees to charge. Because this level depends on the demands of consumers for health care, this paper considers what assumptions are reasonable to make about those demands. Given the emphasis on equity, the relation of health care demands to income may be particularly important.

The author indicates that the demand for health care can be presumed to depend on the price charged for care; on the costs in time of reaching a medical facility and waiting for attention; on the income forgone by seeking care; on income; on one's general condition of health; on the specific conditions or symptoms of illness or accident; on the consumer's ability to diagnose and treat himself which depends among other things on education; and on his opinion of the quality of care he is likely to receive.

Under the assumption that the price charged for public medical care is not to determine supply (because general revenue is available), the optimum price is determined taking account not of the cost of production but only of the government's welfare function. Further, if this function includes both the revenue obtained and the total number of consultations, the optimum price will be set where consumers' demand becomes inelastic—how inelastic depends on the relative values of revenue and consultations.

METHODOLOGY

This is not a household survey, but it provides a perspective on various determinants of demand for health care and the price for medical attention. The paper is based on the fact that goods and services are not independently produced and consumed; one level of utilization (consultation) may be a prerequisite to another (treatment). The author considers price discrimination, particularly with respect to income and to the other (non-fee) costs which consumers must meet in order to obtain medical attention.

FINDINGS

The author argues that introducing a concern for consumer's own utilities and their incomes leads to a lower price, depending on the inequality of income. Distinguishing between necessary and frivolous consultations can either raise or lower the price; the optimum depends on the share of demand that is frivolous.

POLICY RECOMMENDATIONS

This paper acts as a useful bridge from analyses of the demand for health care towards analyses of various aspects of financing health care services at the local and national levels. As recommendations, Musgrove seeks to address some questions:

What prices, or fees for services, should government health services adopt, given that:

- ▲ There is no requirement that fees cover any particular fraction of total cost or bear any particular relation to marginal costs, and
- ▲ Equity considerations are vital?

One of his final comments concerns the argument that setting fees will reduce unnecessary demand. Lastly, he indicates that equity in the raising and use of revenue from patient charges probably requires either that the fees raised in one place be (partly) transferred to less-favored facilities and populations, or that regular (tax-financed) budgets go preferentially to those locations where the optimum fee is lower.

Mwabu, G.M. (1986). Health Care Decisions at the Household Level: Results of a Rural Health Survey in Kenya. *Social Science and Medicine*, vol. 22, no. 3, pp. 315-319.

TOPIC

This paper explores the patterns of patients' visits to health care providers in a period of illness. A visit to a health facility is assumed to be an outcome of a patient's health care decision-making process. Unlike the visits, this process is not observable; thus, this paper first outlines the process and then presents patterns of patients' visits to health care providers in a particular rural area in Kenya.

METHODOLOGY

The data for this study were collected through a household survey set up in Marimanti Rural Health Unit in Meru District in eastern Kenya. The primary aim of the survey was to observe "choice" behavior of patients during an episode of sickness. A multi-stage sampling procedure was used to select the household sample, and a simple random sampling was applied in each step. Thus, the unit of analysis in this study is a household, which can be viewed as a consumer as well as a producer of health. The author indicates that a household's response to an illness depends, among other things, on its perceptions about the illness and on its ability to afford a visit.

FINDINGS

The visit patterns are shown to vary greatly according to type of illness and to the stage of illness. This paper has two main results. The first result is that in the study area the majority of the patients sought medical treatment outside the "free" government health care system. The other finding is that for a given illness episode, there is a very high likelihood of a patient consulting more than one provider for advice or treatment. Which provider(s) the patient will use depends, among other things, on his illness.

POLICY RECOMMENDATIONS

Very general recommendations are presented. The author states that the government can substantially increase the coverage of health services in the population by integrating private providers in its health care system. He concludes by indicating that health planners should search for ways of using this sector to promote the public interest of good health for all (nothing very specific).

Mwabu, G.M., & Mwangi, W.M. (1986). Health Care Financing in Kenya: A Simulation of Welfare Effects of User Fees. *Social Science and Medicine*, vol. 22, no. 7, pp. 763-767.

TOPIC

This paper examines the efficiency and equity effects of introducing user fees in public health facilities in Kenya. The authors demonstrate, with the aid of a simulation technique, that under certain conditions, the introduction of selective user charges in government health facilities would improve their efficiency and also result in some equity gains.

METHODOLOGY

This study is based on data collected from one of 262 Rural Health Units in Kenya. A household's utility function (level of welfare) is derived in an attempt to explain the amount of health services consumed by a household. The parameters of the utility model are estimated with an econometric technique known as Conditional Logit in which it is assumed that in the event of an illness a household faces a set of distinct alternative sources of medical care.

FINDINGS

The demand for health services in government clinics, mission clinics and pharmacies is highly sensitive to changes in relative money prices, referring to cross-price elasticities. In contrast, the demand for health care in government hospitals, private clinics and traditional clinics is quite inelastic.

With "improved" quality of care in the government clinics, the households do not find it necessary to incur additional transportation expense to seek quality treatment in the mission clinics because they can get it more cheaply from government clinics.

An analysis of health care demand by income classes shows that among the households who can afford to pay user fees, the lower income households would gain proportionately more than higher income households. It is found that through their favorable effects on quality of medical services, the user fees in public clinics would yield welfare gains. However, these gains might involve unacceptable equity trade-offs. The visit demand functions for government clinics fall faster for higher income households because as the user fees in government clinics rise, these households are able to shift to other clinics more easily than the low income households. In general, the net welfare effects of user charges on medical services is ambiguous.

POLICY RECOMMENDATIONS

Following the result that the net welfare effect of improved health services in public clinics depends on how these services are financed, the authors suggest that if the user fees are introduced selectively, the equity problem would be manageable. They also indicate that selective user fees can be imposed according to what might be termed "health zones." They further suggest that one strategy that the government can pursue to reduce excess demand pressure on its health services is to lower health care costs in the private health sector.

Newhouse, J.P. (1981). *The Demand for Medical Services: A Retrospect and Prospect*. In J. Vae Der Gaag and M. Perlman (EDS.). *Health, Economics, and Health Economics*, North Holland Publishing Company, pp. 85-101.

TOPIC

The purpose of this paper is to review empirical estimates of demand functions. The author focuses on the methodologies various analysts have employed to derive demand estimates. The nature of the data used in each study has, to a large degree, dictated the methodology used.

METHODOLOGY

The author classified studies by the type of data used to estimate elasticities and assessed strengths and weaknesses of each type. The author reviewed studies based upon insurance claims, premium data, natural experiments, and designed experiments.

FINDINGS

The empirical review illustrates that a number of nonprice variables importantly affect demand. These include health status, age (which may be an imperfect measurement of health status), sex, income, time price, and race. It appears that the effect of education has been more difficult to isolate.

Health status, when included, usually explained more variation than any other single variable. The observed relationship between health status and utilization frequently represented reverse causality. Estimated income elasticities have varied from near zero to approximately 1.0. Distance was one of several variables that affected the time price of care.

Of considerable interest was the investigation of a possible interaction, if any, between income and price elasticities; in particular, are the poor more sensitive to price than the more well-to-do? Most of the data suggested that either it was the case or that it was just inconclusive. However, the author argues that failure to find an effect in certain data sets could merely reflect a lack of statistical power.

The author indicated that there is a serious challenge to the estimated demand functions that he had described in the paper. Many authors have argued that the important determinant of demand is supply, especially the supply of physicians.

POLICY RECOMMENDATIONS

One of the major applications of market analysis is to predict how price and utilization (or quantity bought and sold) will change if the determinants of demand and supply change. From a policy perspective, the author states that both conceptual and empirical knowledge still need to be improved.

Newman, P. (1965). *Malaria Eradication and Population Growth with Special Reference to Ceylon and British Guiana*, Research Series No. 10, Bureau of Public Health Economics, University of Michigan.

TOPIC

The author seeks to estimate the contribution of malaria control programs to the changes in mortality and fertility occurring in Ceylon (later Sri Lanka) and British Guiana (later Guyana) after World War II.

METHODOLOGY

The full-scale control program in Ceylon started in 1947. The method for estimating its effects on mortality consisted of examining the correlation across districts between 1) the prevalence of malaria before control and 2) the change in the death rate following control. The author selected the spleen rate (SR) as the best available measure of malaria prevalence, employed as the units of analysis the 21 administrative districts of Ceylon, and calculated for each age-sex group a regression equation of the following form:

$$dD = x_0 + x_1 SR$$

Where dD is the change in the death rate between a base period before control and a selected period after control, x_0 can then be interpreted as measuring the change in the death rate which occurred independently of the malaria control program, and the difference between x_0 and the actual change in the nationwide death rate represents the effect of the program on that death rate. Similar methods are used for estimating the effects of malaria control on fertility in Ceylon and on mortality and fertility in British Guiana.

FINDINGS

Most of the regression equations of the form shown above indicate that higher levels of the pre-control spleen rate are associated with larger subsequent reductions in mortality, and with smaller subsequent reductions in fertility. In the case of mortality in Ceylon, for example, the regression coefficients imply that the percentage reduction in death rates achieved by malaria control ranged from 10 percent among females aged 65 or over to 40 percent among females aged 35-44. The greatest absolute reduction occurred among infants; malaria control reduced the infant mortality rate by 34 points per thousand births.

Poland, B.D., Taylor, S.M., & Hayes, M.V. (1990). The Ecology of Health Services Utilization in Grenada, West Indies. *Social Science and Medicine*, vol. 30, no.1, pp. 13-24.

TOPIC

This paper examines the role of the home environment, as well as of personal characteristics and accessibility, in the utilization of health services in Grenada. The work has been informed by a socio-ecological model of health, whereby proximal and distal determinants interact with individuals to produce a variety of health-related outcomes. The model identifies a range of factors that potentially influence individual health services utilization and the complex interactions that exist among them.

METHODOLOGY

To assess the impact of household environment on health services utilization in Grenada, three information sets were necessary. A census was conducted to establish population at risk, medical records were scanned for utilization data, and a household survey provided the individual and household parameters of interest.

Utilization data were gathered from area medical service records (health maintenance and treatment clinics, private physicians, hospitals) for residents of five communities. Both distance to health care facilities and accessibility ratings were assessed at the smallest geographically meaningful scale. Accessibility incorporated physical, socio-economic, and organizational dimensions as barriers to care.

FINDINGS

Logit models were used in predicting individual utilization on the basis of personal characteristics, home environment, and accessibility. Bivariate correlations indicated that a wide range of environmental factors may be considered potential influences on health service utilization at the individual and household levels. Age emerged as significant in all but one model. Among adults the likelihood as well as degree of service use was shown to increase with age, as one would expect. The reverse was observed among children, giving rise to a U-relationship between age and utilization. Gender was also a distinguishing factor, females generating much greater service use than males.

Measures of accessibility (both distance and "access") to permanent health care services were significant predictors of utilization in all of the logit models. Measures of the home environment were statistically correlated with accessibility. Overall, this study has demonstrated the importance of the home environment in the utilization process in Grenada.

POLICY RECOMMENDATIONS

The authors state that the policy implications of this analysis for local health planners are not self-evident, because it is not immediately evident whether the system is being under or over utilized without stronger indicators of actual health status than were available in this study.

There is a reinforced need for a contextual analysis of health and health service use that grapples with the underlying nature of observed relationships and seeks to understand utilization as a dynamic multi-stage process with multiple end states. Lastly, the authors indicate that because of the geographical clustering effect, a closer look at neighborhood level differences in health status and the ecology of health is warranted. This would allow the determination of appropriate interventions at such a level.

Preuksaraj, S. (1984). Public Health Aspects of Opisthorchiasis in Thailand. *Arzneim.-Forsch./Drug Res.*, 34 (II), NR. 9B, pp. 1119-1120.

TOPIC

Opisthorchiasis, a disease caused by the liver fluke, is a prevalent problem in Thailand. This article discusses the number of cases found in each region of the country and identifies types of consumer behavior which are responsible for the high incidence of infection.

METHODOLOGY

Data for this article was obtained from a nationwide survey on the prevalence of intestinal helminthic infections in the rural population of Thailand by the Helminthiasis Section, Department of Communicable Disease Control, Ministry of Public Health (1980-81).

FINDINGS

Out of 43,339 fecal specimens from villagers in 28 provinces in the four regions of the country, 23,686 tested positive for parasitic infections. From this data the overall presence of opisthorchiasis was estimated at 14.72 percent, or 7 million people. Unlike southern Thailand, where no infections have been reported, northeastern Thailand has faced the highest incidence of opisthorchiasis in the country for several decades. For example, in the northeastern province of Sakon Nahon, 69.97 percent of fecal specimens tested positive for this disease.

Factors which lead to the prevalence of opisthorchiasis are 1) the population explosion, especially in the northeast where the rural population increased from 3.5 million in 1965 to 5.4 million in 1981; 2) the adverse effects of development of reservoirs and large scale irrigation systems in the area which cause the fish serving as intermediate hosts to increase; 3) the habit of consuming raw fish, a food very important to the northeast; and 4) the unavailability of latrines and habit of defecating on the ground.

Measures were taken to reduce the prevalence rate through health education and improved sanitation; however, these programs met with little success due to the difficulties in changing consumers' habits. Although opisthorchiasis leads to few mortalities, the morbidity causes increased loss of man power (work days lost) and economic problems to the people. At the time this paper was written, Thailand planned to integrate a new specific drug to treat the disease in its primary health care and health education programs.

Price, M. (1988). *The Consequences of Health Service Privatization for Equality and Equity in Health Care in South Africa*. *Social Science and Medicine*, vol. 27, no. 7, pp. 703-716.

TOPIC

This paper describes the trend towards greater privatization in the Republic of South Africa (RSA) and identifies two factors which promote this trend: 1) the shift in government policy, and 2) the growing demand of blacks for private sector care. The author explains how the growth in private medical services may lead to negative consequences on equality and equity.

METHODOLOGY

The consequences of three distinct aspects of privatization are discussed: 1) private sources of funds; 2) the reimbursement of providers on a fee-for-service basis; and 3) the existence of multiple private providers and privately owned facilities. Due to definitional problems related to the pattern of ownership and reimbursement of providers, it is possible that some data appear in the wrong categories. The author also examines how the issues of economic and financial efficiency influence equity and equality.

FINDINGS

South Africa's four provinces provide public hospital services and personal medical care as part of the national public health care program. City and town councils are responsible for environmental hygiene, health promotion and rehabilitation, and for prevention and treatment of communicable disease. The private sector mainly consists of general practitioners and specialists in private practice, and private hospitals. Many private hospitals receive subsidies from the state to recover recurrent costs; the remainder are for profit. It is estimated that half of all practicing doctors work in the private sector, generally on a fee-for-service basis, and the remaining half practice in the public sector and receive set salaries.

Although contributing only 12.4 percent of the total number of beds, the private hospital industry has grown rapidly in the last four years due to government changes in policy. Since the late 1970s the government has changed its stance in favor of privatization, mainly because of the severe recession and the constraints on public expenditure on health, many of which are due to the costs of maintaining apartheid. As part of this new stance, fees have been increased at government hospitals so that some income groups must pay more to go to public hospitals than to private practitioners. With increased privatization, the government can attribute patterns in health care to market forces and thus avoid taking responsibility for political decisions. Unfortunately, this strategy undermines resistance from the black population, since there is no group on whom they can apply pressure for change.

The expanding private health sector has attracted many blacks because it provides racially integrated services for those who are willing or able to pay (primarily the white population). These services are superior to those offered in black public hospitals, which are unequally funded and staffed. Whites

receive about three to four times more public money per capita than blacks, although only a small percentage of the white population depends on public sector services compared with nearly 90 percent of the black population. Because an increase in the quantity of private health services largely depends on the number of people covered by health insurance, black employees' membership in medical schemes has dramatically risen as a result of increased demand by blacks for health services. From 1979 to 1983, the number of black medical scheme beneficiaries increased by 66.4 percent, compared to an increase of white beneficiaries of only 1.8 percent. The geographical distribution of fee-for-service providers also reflects the division of race. Of the 22 private hospitals, with the exception of one convalescent home, all are situated in the white areas.

According to the author, as a result of a combination of methods of reimbursement and methods of financing, the health care system of RSA has created financial obstacles to equal access to health care for equal need. Although the RSA offers public health services to all, patients who are unable to pay will most likely suffer some financial hardship or choose not to seek care because they believe the fees are too high. In order to establish equal access to private fee-for-service health services, the entire population should be covered by risk-sharing schemes. The feasibility of achieving 100 percent coverage is low, however, since 50 percent of doctors who work in the private sector presently serve only about 20 percent of the population. Moreover, private insurance tends to exclude high risk groups such as the chronically ill, and membership in employees' insurance is likely to decrease. According to present trends in private voluntary health insurance, by the year 2000 only half of the African economically active population will be formally employed.

POLICY RECOMMENDATIONS

The author focuses on theory in this article, rather than discussing RSA's situation in detail. He believes publicly owned and financed services are likely to be more efficient than the profit motive and competition of multiple fee-for-service private providers at providing equal access for equal need. He proposed setting up a system of capitation fees to ensure that income would not be an obstacle to registering with a doctor.

Rodrigues, J. (1989). Hospital Utilization and Reimbursement Method in Brazil. *International Journal of Health Planning and Management*, vol. 4, pp. 3-15.

TOPIC

The increase in hospital admissions and the escalation of hospital costs were out of control in Brazil by the early 1980s. This study evaluates the introduction in 1983 of a new case-based reimbursement method, which led to increased hospitalizations and a shift in private hospitals from more costly patients to less costly patients.

METHODOLOGY

For the purpose of this work, the writer assembled data on urban hospital discharges from private hospitals, both profit and non-profit, from INAMPS (Instituto Nacional de Assistencia Medica de Previdencia Social) data publications for the period of 1970-1986. Utilization is defined as the number of patients discharged from the hospital. The collection of data lacks information on patient and hospital characteristics, including measures such as length of stay and occupancy rate.

FINDINGS

The Brazilian Social Security Program, which includes INAMPS, covers the cost of medical care for almost the entire population. As part of this program INAMPS contracts for more than 80 percent of all private hospital beds. INAMPS contracting for private beds accounted for 70 percent of the total number of beds in 1980, when about 80 percent of urban patients received treatment in private hospitals. Federal, state, university and municipal hospitals treated the rest of the population. INAMPS reimbursed hospitals on a per diem basis until 1983, when INAMPS introduced the case-based prospective payment as a method to control hospital admissions and expenditures. According to INAMPS, the case classifications for the payment system were derived from the average values of all cases from all patient bills all over the country.

Contrary to INAMPS goal, hospital discharges in private hospitals actually increased by 8 percent between 1983 and 1984, after the establishment of the case-based payment system. Although private hospital discharges declined in 1985 and 1986, this drop was caused by a severe economic recession, the establishment of hospital admissions quotas, and a shift in hospitalization from private to public hospitals. An increase in the percentage of general medicine discharges and a decrease in the percentage of general surgery discharges also occurred after the switch to the new fee system. This change in hospital case mix demonstrates that hospitals are treating a higher proportion of less complex cases, whether the number of hospitalizations are increasing or decreasing. Surgical procedures in Brazilian for-profit, private hospitals have declined to 15 percent of total discharges, while surgical procedures in public hospitals are above 40 percent of total discharges. In addition, hospitalization in general medicine is higher in the richest regions of the country. The high admissions in general medicine have led to claims that many of these cases can be treated out of the hospital. The data suggest the present system has contributed to the accumulation of benefits

for a select few at the expense of contributions from the working class.

POLICY RECOMMENDATIONS

It is suggested that further analysis is needed to evaluate changes in the Brazilian hospital sector. Three questions raised are:

1. Is resource allocation based on the needs of the population or on the pressure of health service providers?
2. Has increased utilization of hospital services had any impact on the population's health status? (At the time this article was written, this question was of particular importance since in 1987 Brazil's National Commission for Health Reform proposed increasing health care expenditures from 2 percent of G.N.P. to over 10 percent of G.N.P.)
3. What other factors have contributed to the present pattern of health care utilization?

Ruhul, A., Chowdhury, S.A., Kamal, G.M., & Chowdhury, J. (1989). Community Health Services and Health Care Utilization in Rural Bangladesh. *Social Science and Medicine*, vol. 29, no. 12, pp. 1343-1349.

TOPIC

This study examines the premise that the utilization of public health care services can be increased by increasing the availability and accessibility of effective care and by improving disease recognition and management by health practitioners.

METHODOLOGY

The study uses data from two surveys conducted in the Companigang area of Bangladesh. Random samples of 998 and 2020 rural households from the entire geographical area of Companigang were selected in surveys conducted in 1976 and 1987 respectively. The authors do caution the readers that the surveys were being based on verbal reporting and retrospective data.

FINDINGS

The overall socio-economic, demographic, and other differences in preferences for alternative medical practitioners have been demonstrated for the years 1976 and 1987. Both in 1976 and 1987 a large majority of the respondents preferred providers of modern medicine. Socio-economic status and proximity to health centers seemed to have promoted preference for formal modern practitioners.

POLICY RECOMMENDATIONS

The authors indicate that these findings should make the people responsible for health program planning and health program implementation realize that access to basic public health care services can be made broad enough to cover the majority of the rural population through a system of decentralized curative and preventive services. The authors add that a system of adequate training, deployment, and supervision of health professionals should be part of the decentralization process.

Salkever, D.S. (1976). *Accessibility and Demand for Preventive Care. Social Science and Medicine*, vol. 10, pp. 469-475.

TOPIC

The author explores the multifaceted nature of accessibility by means of external validation, i.e., by empirical analysis of the role of different types of access barriers in determining whether or not individuals obtain care.

METHODOLOGY

The application of the basic economic demand model to the case of preventive services is examined. Multiple regression analysis is applied to household interview data from Baltimore, Maryland; the state of Vermont, and the Canadian Province of Saskatchewan to obtain demand functions for physical examinations. The measure of use employed in this paper is dichotomous: receipt or non-receipt of a physical examination within a 12-month period. Financial accessibility and physical accessibility are the two aspects which are explored. The empirical demand equation includes as independent variables measures of income, insurance coverage, time costs and value of time, as well as a number of "taste" variables.

FINDINGS

The empirical results tend to indicate that financial accessibility factors influence the demand for preventive services. The effect of ambulatory insurance coverage on demand is not consistently positive. The author states that this reflects the substitution of curative for preventive services. The time cost variables are inconsistent with the model's predictions. However, the results for the taste variables are more consistent. The very significant coefficients for females show that they clearly demand more preventive services than men. The results for years of education show a small but significant impact of education and attitudes on demand.

POLICY RECOMMENDATIONS

Some remarks are made with regard to the policy implications of the findings. The author indicates that the current emphasis in health policies dealing with accessibility is on the reduction of physical and financial access barriers, but the coefficient estimates presented raise the possibility that this emphasis is at best too narrow and at worst misplaced.

Sauerborn, R., Nougbara, A., and Diesfeld, H. J. (1989). Low Utilization of Community Health Workers: Results from a Household Interview Survey in Burkina FASO. *Social Science and Medicine*, 29 (10), pp. 1163-1174.

TOPIC

A representative household survey was carried out in order to study the utilization of community health workers (CHW) in relation to other sources of health care. Three issues are examined in this paper: 1) the extent to which CHW's were consulted in case of disease, 2) the referral pattern of seriously ill patients from the CHW to the next professional facility, 3) the determinants of people's choice whether to use professional or community care. Note: CHW's are seen by the government as the primary source of primary health care (PHC) delivery; in the village health post, there are two male CHWs and two female traditional birth attendants (TBAs) who are elected by villagers. CHWs and TBAs receive one month of training.

METHODOLOGY

Primary data collection was carried out through the use of a representative household survey. The district of Solenzo was chosen as a study area because it had been considered a favorable environment for the implementation of a CHW scheme (good existing infrastructure, continuous ongoing CHW program).

An initial literature survey revealed 4 sets of primary variables for consideration: disease variables, individual variables, household variables, and service-linked variables.

A stratified cluster-sample, where n=715 households, was then drawn from the study population. Villages were stratified by level of health care provision: 1) villages with a medical center (1 out of 1); 2) with a dispensary (4 out of 4); 3) with a health post-CHW (12 out of 29); 4) villages without any Western health care (13 out of 70). Data was weighted appropriately.

The questionnaire was comprised of three sets of questions: 1) demographic and socio-economic variables; 2) information on previous diseases (6-month recall time); 3) health-seeking behavior. There were five health-seeking options to choose from: family/self treatment, traditional healer, CHW, professional care (midwife, nurse), or no care at all.

FINDINGS

Infants were treated exclusively by their mothers. There was also considerable underutilization of CHW's by toddlers (only 2 percent were taken for care when ill). The family remained the primary source of care in cases of illness. TBAs were used significantly more frequently for antenatal care and for delivery assistance than their male colleagues for treatment of any type of disease. No significant referral pattern could be traced from CHW to nurse or vice versa. A correlation was noted between use of professional health services and high level of educational attainment. When people were asked what would most improve health in their village, CHWs were given very low priority; direct access to a dispensary was cited most often.

Why the underutilization of CHWs?

- ▲ The health service did not seek to obtain information on the real demand of villagers before implementing the CHW scheme. The selection criteria (2 women and 2 men) was imposed.
- ▲ Conflicts in the village: "No care was taken to involve village women, a group with little power but important and competent in health care issues."
- ▲ The treatment that could be offered by CHWs (which covered less than half the reported diseases) was too limited.
- ▲ Four weeks training was too short a period, although in this instance, supervision of CHWs by the medical center was deemed adequate, and a steady supply of drugs was available.
- ▲ Low motivation of CHWs and a high attrition rate were attributed to deficiencies in remuneration of CHWs by the communities.
- ▲ Gender of CHWs: TBAs were restricted to delivery assistance and ante and postnatal care; thus male CHWs were responsible for curative care of children. As mothers are traditionally the health care providers for their children, the CHW met with extremely low acceptance as a provider of care for children.
- ▲ A different conception of the meaning of disease and death in young children in particular often means that they are not brought in for care because the death of a child is seen as his/her choice to reject coming into the earthly world at that time.

POLICY RECOMMENDATIONS

There are two approaches possible:

- a. Adhere to the concept of CHW as the provider of PHC but, stimulate attempts to integrate traditional healers into community health activities, encourage the choice of women as CHWs and enlarge their tasks beyond those already assumed by village mothers, increase training time and diseases to be covered by CHWs.

There are two potential problems. Will village women be able to absorb the technical knowledge needed for expanded CHW work, and will women have enough time to assume CHW responsibilities on top of their already numerous tasks?

- b. Withdraw from the concept of the CHW as the provider of PHC. Instead, improve family care and create comprehensive basic professional services, improve the skills of women as providers of care of common diseases, improve their education and encourage them to use effective and simple treatment for their family members; improve peripheral professional health services; rethink the relationship between peripheral health services and the population (community participation). In this scheme, the CHW would remain as a village-based contact and resource person. This is the approach suggested by the authors as most appropriate for this situation.

Simmons, R., Bagee, L., Koenig, M., & Phillips, J. (1988). "Beyond Supply: The Importance of Female Family Planning Workers in Rural Bangladesh," *Studies in Family Planning*, 19 (1), pp. 29-38.

TOPIC

This article examines the interface between a government family planning program in rural Bangladesh and the women it serves.

METHODOLOGY

Participant-observation data were collected from meetings between family planning workers and clients. Seven of these meetings are described in detail in the article. Data collection was concentrated in the areas of 1) the worker's role in reducing fear of contraceptive technology, 2) her efforts to address religious barriers, child mortality risks, and high fertility preferences, and 3) her role in mobilizing male support.

FINDINGS

In general, the family planning workers were found to be agents of change "whose presence helps to shift reproductive decision making away from passivity, exposing women long secluded by the tradition of purdah to the modern notion of deliberate choice." However, the seven case studies also provide numerous examples of the obstacles to change. One prospective client was in extreme poverty and had had fifteen pregnancies. She agreed with the worker that she should have no more, but seemed reluctant to accept family planning. "The woman [finally] reveals [to the worker] who might be the real barrier in this case: her brother, who objects to family planning on religious grounds. He has threatened a sister-in-law with social sanctions [for having an IUD inserted] and the refusal to give her the last prayer at her death."

Stanton, B. & Clemens. J. (1989). **User Fees for Health Care in Developing Countries: A Case Study of Bangladesh.** *Social Science and Medicine*, vol. 29, no. 10, pp. 1199-1205.

TOPIC

This paper examines the possible impact of user fees on the health of individuals in Bangladesh and gives evidence for why fees may impede access of the poor to medical care.

METHODOLOGY

Data for this analysis is obtained from previously published work and from a study of 51 clusters of 38 families living in slum communities in Dhaka. The potential for user fees in Bangladesh is examined according to questions often posited by economists. The study attempts to answer these questions from the perspective of health care providers.

FINDINGS

Economists have argued that because people are already paying for traditional and private medicine, they would be willing to pay for government health care. But many Bangladeshis believe allopathic medicine is inappropriate for certain types of disease. In addition, distance from home to clinic setting may differ, depending on whether the facility is private or owned by the government. Because Bangladesh lacks data assessing the impact of charges on treatment-seeking behavior, this study examines utilization rates, especially those of persons in high-risk categories, in private hospitals which charge fees. According to data from the primary health project in Dhaka, only 35 percent of females, compared to 49 percent of males, received allopathic care prior to death. Among poorer families, males received care much more frequently than females (53 percent vs. 17 percent).

In the 2000 rural health clinics established by the government of Bangladesh, an average of 800 visits a month were made to each of the clinics, which are designed to serve 1500-2000 patients a month. While the system is underutilized, a substantial portion of the care provided is for the poor and women. Out of 492 randomly sampled persons who attended 1 of 12 government outpatient clinics, 53 percent owned less than 0.5 acres while 13 percent owned more than 2.5 acres of land. Economists have argued that externalities of curative health care are limited; however, early intervention may limit subsequent exposure of the family and community to infectious diseases. Although data on the ultimate cost-containment of early curative care are not available, data from other countries suggest that the provision of early curative care will reduce later, more expensive health care costs. Finally, because it seems that health knowledge in Bangladesh is limited, persons facing user charges may opt not to seek treatment if they do not understand its potential benefits. Without health knowledge, persons often seek care depending on their level of pain or discomfort. But for certain diseases such as hypertension, streptococcal infection, and syphilis, the level of discomfort may not correspond to the level of seriousness. Moreover, there is evidence that people of lower socio-economic status do not seek health care as readily as wealthier people who seem to face the same degree of discomfort.

POLICY RECOMMENDATIONS

While this study concludes that introducing user fees in Bangladesh may negatively impact the nation's health, it does not conclude that user fees should receive no further consideration in developing countries. It suggests that rigorous experimentation, exploration of alternative means of cost-recovery, and ethnographic evaluations should precede the implementation of user fees. Another issue mentioned is the level of patient entry, which is beyond the scope of this paper but is relevant to the subject of user fees.

Stapleton, M. C. (1989). Diarrhoeal Diseases: Perceptions and Practices in Nepal. *Social Science and Medicine*, 28 (6), pp. 593-604.

TOPIC

This article examines the believed causes of diarrheal disease in Nepal. It addresses the implications of these beliefs on health behavior education to prevent and treat diarrhea.

METHODOLOGY

The author first conducts a literature review on natural and supernatural causes and treatments of diarrheal disease. The main study of the paper is compiled from a survey of health and development workers in Nepal (both Nepalese and ex-patriate). A questionnaire was mailed to 450 workers, 320 (71 percent) of whom responded; respondents were found to represent 40 of the country's 75 districts. The questionnaire asked workers to answer questions in terms of their personal experiences of the population—thus the survey was a second-hand survey of health care and development users.

FINDINGS

- ▲ Teething was the most popular cause of diarrhea (75 percent of respondents); incorrect diet (too much hot or cold content) and dirty water were also popular responses.
- ▲ In agreement with the literature, the hot-cold principle appears to be of importance in the diagnosis and treatment of diarrhea; each episode of diarrhea and dysentery is classified as hot or cold depending on the circumstances surrounding it, and it is then treated accordingly.
- ▲ Evil spirits were also thought to cause diarrhea (30 percent). Traditional healers were consulted in case of diarrhea thought to be caused by evil spirits.
- ▲ 83 percent of respondents said that breast feeding was never discontinued during diarrheal illness. Responses regarding food restriction during diarrhea show that practices are not straightforward: 48 percent said that food was sometimes restricted, 39 percent said it was never restricted, and 10 percent said it was always restricted.
- ▲ Fluids appear to be more commonly restricted than food during episodes of diarrhea.
- ▲ Like foods, some fluids are regarded as harmful and some as beneficial (depending on their hot-cold qualities).
- ▲ The fact the dirty water is seen as a major cause of diarrhea is seen as encouraging for clean water and sanitation projects.

- ▲ The fact that teething and diarrhea have such a widely accepted cause and effect relationship could be an obstacle to the promotion of immediate ORT treatment because of the inevitability of teething (consequently diarrhea may be regarded as inevitable as well); it is difficult to see how this cultural belief can be overcome or utilized.
- ▲ At present oral rehydration salts (ORS) (which is recommended to be used at a more advanced stage of dehydration than ORT) is recommended to be prepared with cold water which will probably be unacceptable in some cases (due to the hot-cold principle). Its promotion consequently needs to be flexibly manipulated in terms of the hot-cold principle. Patient compliance with the use of ORS may be poor because Nepalese villagers have their own ideas about the cause and treatment of diarrhea.

POLICY RECOMMENDATIONS

The authors suggest that the aim of preventing dehydration should stress traditionally acceptable feeding practices as the best response for early diarrheal treatment and should be aimed at child caretakers. It should also focus on commonly recognized dehydration "worrying symptoms" as a basis for using ORS and should be aimed not only at child caretakers but also at faith-healers.

Stoddart, G. L., & Bare, M. L. (1981). *Analyses of Demand and Utilization Through Episodes of Medical Services*. In J. Van Der Gaag and M. Perlman (EDS.), *Health, Economics, and Health Economics*, North Holland Publishing Company, pp. 149-169.

TOPIC

The purpose of this paper is to illustrate one potentially fruitful approach to demand analysis.

METHODOLOGY

The authors discuss the demand/utilization distinction in the context of two bodies of literature. First, referring to existing empirical studies of factors influencing the "demand" for medical services, the authors illustrate the need for a measure of demand in the presence of inducement (physician-generated utilization of services). Second, they draw upon the theoretical discussion of welfare burdens associated health insurance.

The authors also outline an approach to demand measurement using data on episodes of medical service, proceeding from a definition of episodes to an application of the concept in a primary care setting which resulted in the disaggregation into episodes of one year's utilization experience for approximately 1300 urban families. These episodes were employed to estimate demand equations and to investigate the potential bias involved in substituting utilization for demand measures in such equations.

FINDINGS

The empirical review illustrates that, while the specifications in most "demand" studies may be appropriate in a world of perfect agents, they are likely to be inappropriate wherever physicians exercise discretionary power over any utilization which deviates from that which would be chosen by the fully-informed consumer/patient.

The authors considered in this paper three specific equations which arose from the substitution of an episodic demand measure for more customary utilization or expenditure measures as the dependent variable in "demand" equations. The elasticity of demand with respect to travel time is low (-0.008). The income elasticity of demand is -0.15. The authors argue that the inverse relationship between income and demand does not support the enabling effect of income postulated by conventional economic theory nor is it consistent with the "demand" estimates of Grossman [M. Grossman (1972). *The demand for health: A theoretical and empirical investigation*. *NBER Conference Series*. NY.]. The negative sign may be consistent with the hypothesis that the opportunity cost of seeking care is higher for higher income individuals, although this requires further investigation.

POLICY RECOMMENDATIONS

From a policy perspective, the authors state that there is nothing wrong with estimating utilization equations. Further research is however required on both utilization and demand phenomena. The danger arises when the results from a conceptual "demand" framework are derived and little attention is given to the potential supply-side policies aimed at impacts on utilization. With regard to the failure to distinguish demand from utilization in the welfare burden literature, the usefulness of this literature for policy purposes may be seriously undermined.

The areas of policy and research interest in which both empirical results and the conceptual framework of an episodic approach to demand and utilization would be useful include manpower planning and cost-effectiveness analyses. The ability to measure and apply demand rather than utilization information as a basis for manpower planning would provide a significant refinement to this area of policy analysis.

Sukkary-Stolba, S. (1987). Food Classifications and the Diets of Young Children in Rural Egypt. *Social Science and Medicine*, 25 (4), pp. 401-404.

TOPIC

This article examines the manner in which food is classified by Egyptian mothers into "light" and "heavy" categories. The mothers follow these guidelines when feeding their toddlers (children ages 9-14 months), and malnutrition often results.

METHODOLOGY

This work is based on data from three field studies carried out in rural Egypt in 1984, 1977/78, and 1974, respectively.

FINDINGS

In Egyptian villages the toddler status is not recognized as a specific period of growth that is any different from the general category of childhood. Food is classified into two categories, "light" and "heavy." A mother states, "Light foods are easy to digest; they are good for the sick and for babies. But 'heavy' foods taste good although they are bad for your intestines." Because foods are categorized according to their degree of digestibility and taste, they may differ in classification from person to person, depending on the food's effect on the particular individual. Mothers fear giving their toddlers the wrong type of food and believe that it can lead to death by making the intestines "rot."

There appear to be two distinct types of dietary patterns for toddlers 1) mothers favor breastfeeding and liquid diets for the first 14 months. Any solid food the toddler receives is fruit or bread and given by siblings or adults; 2) mothers who follow this dietary pattern for their children gradually begin to feed them solid foods, and introduce their children to "heavy" foods by dipping their finger in the food and letting the child lick it off. Mashing and giving small quantities of an item often transfers it from "heavy" to "light."

Villagers identify two eating methods: *Akl bil Baraka* and *Akl bil Hassab*, the first practiced by poor villagers and the second by rich people. The former refers to the system in which one eats all that they can because resources are scarce, whereas in the latter system, an individual picks and chooses what s/he will eat. In spite of these classifications and the rural identification with *Akl bil Baraka* method, mothers are observed selecting certain foods and labeling them "light" and rejecting others as "heavy" foods for toddlers.

Foods culturally perceived as "light" are used to supplement breastfeeding. However "heavy" foods include those with the animal proteins deemed necessary to toddler growth, as well as the essential amino acids which are present in chicken, beef, and meats in general (all classified as "heavy").

In this area infants are born with a healthy average birthweight of 3.2 kg, which should lead to having healthy toddlers. However the areas in question have a high mortality rate among 9-15 month olds, an average of 125 per thousand. The cause of death is often identified as *nazla*, a local term that refers to severe gastrointestinitis (and is associated with nutritional status).

Taylor, T. (1988). Health Problems and Use of Services at Two Urban American Indian Clinics. *Public Health Reports*, 103 pp. 88-95.

TOPIC

This article examines the types of health problems experienced by urban American Indians and assesses the availability of health services to American Indians living in urban areas.

METHODOLOGY

Data were collected from the medical records of two clinics which serve urban American Indian populations. A cross-sectional design was selected for these survey data from calendar year 1982. It is noted that the degree to which these clinics were the sole source of primary health care for the patients surveyed is unknown; however the low socio-economic status of the surveyed patients would indicate their inability to pay for care at other locations.

FINDINGS

Survey findings (determinants of utilization):

- ▲ The mean annual number of visits per patient at survey clinic sites was 3.0, as compared to 3.6 visits for the Oklahoma City Area of the Indian Health Service (IHS).
- ▲ The wide variety of health problems is typical of a general primary health care clinic.
- ▲ The median age of 30.5 years was higher than the median age of all American Indians of 23.4 years; however pediatric patients were excluded from the clinic surveys, thus biasing the median age of respondents upward.
- ▲ Tribal affiliations were primarily eastern tribes and plains tribes.
- ▲ 43.2 percent of the sample had completed high school; 19.3 percent had attended or finished college.
- ▲ The median income of the sample was \$5,417 as compared to the median income of all American Indian families in 1979 of \$13,678; 76.6 percent of the sample had incomes of \$10,000 or less.
- ▲ 64.2 percent of the sample had no health insurance at all; 27.5 percent had some form of private insurance; and 8.3 percent had public insurance (Medicaid or Medicare).

Comparison with National Data:

For all ages, both sexes, and all income levels, the urban Indian study group showed significantly lower use of ambulatory health services when compared with National Health Insurance Survey (NHIS) data for all places of physician contact. However, it is the opinion of experienced medical staff in the area that the urban Indian clinics are by far the principal site for health care

delivery by the people who use them. The health problems and needs of the urban Indian clinic patients were quite similar to those of all IHS patients and Oklahoma City area IHS patients.

Assessment of consumer efficiency:

The patient population has a very low level of health insurance coverage. The impoverished conditions of the study group was not unexpected; however, it was surprising that so few had public insurance. It is suggested that the relatively low levels of educational attainment by many of the sample population may offer some explanation because of the well-established link between education, employment, and health insurance coverage. The primary health problems and needs of the urban American Indian population are quite similar to those of the general Indian population residing in the surrounding rural areas.

POLICY RECOMMENDATIONS

Further study is of great importance to help determine the reasons why there is less use of primary health care services by urban Indians compared with IHS patients and the general US population. It would be highly desirable to conduct a health interview survey of urban American Indian households to remedy the lack of essential data.

Assessment of rural-urban shifts in special interest group populations needs to be taken more into account in the distribution of health care services and services should be redistributed according to these shifts.

Tilney, J. JR., Bitran, R., Deal, D., & BA, B. (1992). *The Gambia: Review of Ministry of Health Cost Recovery Program*, Cambridge, MA: ABT Associates.

TOPIC

This report analyzes the operation of a Drug Revolving Fund established in The Gambia in 1988, under which the revenue from fees collected at government outpatient facilities defray part of the costs of drug purchases.

METHODOLOGY

Among the specific questions examined in the report, there are three which are directly relevant for an analysis of inefficiencies in the consumption of health services. The methodologies used in these three areas as follows:

1. The impact of user fees on utilization is analyzed with time-series data on utilization before and after the imposition of the user fees.
2. The demand for health services is analyzed with cross-sectional data obtained from a nationwide sample survey of 211 households.
3. Impressions about perverse influences of providers on the quality of health care are obtained by conversations with Ministry of Health officials.

FINDINGS

Findings in these three areas are as follows:

1. "The introduction of fees had a negative effect (on utilization), and this effect seems to have been most severe on those groups where the burden of the fee system was the heaviest (i.e., adults over 15). In all cases, utilization picked up after the initial shock and in many cases reached or exceeded the levels they were at before the introduction of fees."
2. A large majority of the individuals using preventive services are women and children.
3. "Inappropriate diagnostic and treatment practices...appear to be pervasive...expensive drugs get prescribed when cheaper drugs are sufficient,...drugs are prescribed when there is no need for them."

POLICY RECOMMENDATIONS

These and other findings lead to recommendations for general increases in user fees. There are also suggestions for improving the management of the fund. It is proposed that the problem of inappropriate diagnosis and treatment be the subject of further study.

Timaeus, I., Harpham, T., Price, M. & Gilson, L. (1988). **Health Surveys in Developing Countries: The Objective and Design of an International Programme.** *Social Science and Medicine*, vol. 27, no. 4, pp. 359-368.

TOPIC

This paper discusses household surveys used by health planners in assessing determinants of demand and health service utilization in less developed countries. The authors indicate that international efforts are being made to improve national health information systems. An appropriate health interview survey could be used to ascertain patterns of morbidity and mortality, to measure access to and use of health services and to develop and disseminate methodologies for collecting and analyzing health related data.

FINDINGS

The authors state that the multifactorial nature of many health problems in the developing world, particularly those associated with poverty, means that better knowledge of determinants can only come from research aimed at elucidating the complex processes leading to disease and death. No single approach to the provision of information or to analysis will be able to resolve the difficulty of research in this area.

A great deal can be learnt from sophisticated analyses of retrospective survey data using statistical controls for confounding factors. However, the authors add that such investigations have inherent limitations for the definite attribution of causality.

It is also difficult to evaluate the provision of health care using measures of service output, such as the number of immunized children, or other utilization and coverage data. Information on fees, transport and time costs should be thus collected in relation to the socio-economic characteristics of the respondents in order to adequately investigate the determinants of service use. Data on health program costs should be joined with data on patient costs. Information on the adequacy of care is also very important.

POLICY RECOMMENDATIONS

The authors make no specific recommendations, but the comments in this paper indicate that, in planning country health studies, it is important to consider the opportunity cost of conducting surveys in terms of the limited capacity of developing countries' statistical organizations as well as in financial terms.

The authors indicate that fieldwork operations (design and organizational issues) should follow a similar model to that adopted for the Living Standards Measurement Surveys (LSMS) of the World Bank. These surveys ensure that interviews in each region and stratum are spread across the whole year. The authors recognize, however, that conducting year-round fieldwork may be impractical in precisely those countries in which seasonal variations in health are probably greatest.

Ugalde, A. (1984). Where There is a Doctor: Strategies to Increase Productivity at Lower Costs. *The Economics of Rural Health Care in the Dominican Republic. Social Science and Medicine*, 19 (4), pp. 441-450.

TOPIC

This is a study of a rural health district in the Dominican Republic which reveals relatively high levels of public and out-of-pocket primary health expenditures and poor quality of care associated with district health services.

METHODOLOGY

The methodology employed is anthropological. The researchers present data collected during nine months of field work (November, 1982 - July, 1983). Data was collected through conversations and observations in the households. Household income and expenditures were analyzed.

FINDINGS

The research team found that the high costs and the inefficiencies of the delivery system were caused by three major factors:

1. Low utilization of health services.

- ▲ Dispersion of the population led to low rates of usage. The hamlet where the clinic itself was located reported user rates which were twice the rates of the entire section (people from outside the hamlet were not using the services).
- ▲ Shortages of medicine. People went to the clinic when the supply of medicine was delivered and insisted on being given medicine (distributed for free). Once medicine supplies ran out, people by-passed the clinic to self-refer to urban health centers and would pay for medicine, thus increasing their transportation costs and out-of-pocket expenditures.

2. Compulsory year of rural medical service (pasantia):

- ▲ Doctors are assigned to rural health centers for a mandatory one year contract when they complete medical school. They are not trained in medical school for rural medicine, and have little investment in the clinic in which they work, as they are only there for one year. Thus there is no sense of continuity and there is a very low level of trust by the people of the doctor or the clinic.
- ▲ Doctors have too much spare time due to underutilization of services—lack of inspiration.

3. **Poor managerial practices and low educational levels:**

- ▲ Record keeping was highly inefficient due to the transient nature of the doctor's posting. Replacement of faulty equipment not followed through on, as the doctor would leave before the order was delivered.
- ▲ The supervisor of health promoters had not been trained in supervision. The zone supervisor had never been to the clinic to check up on the local supervisor.

Out-of-pocket expenditures discussed were:

- ▲ Public sector paying one-third and the private sector paying two-thirds; 58 percent of out-of-pocket expense is for medicines.
- ▲ Out-of-pocket expenditure on medicine is high because, 1) rural stores selling medicine have a small volume of stock; therefore their prices are high; 2) remedies purchased are of doubtful therapeutic value (result of self-medication); 3) overmedication; 4) lack of concern by private physicians regarding the cost of drugs prescribed.

POLICY RECOMMENDATIONS

- ▲ Discontinuation of mandatory year appointments—to be replaced by permanent posts filled by unemployed physicians (of which, apparently, there are many).
- ▲ New functions for the physician—not only in health care, but also during the time not spent with patients, physicians act as leaders of the health team and train and educate promoters and health educators.
- ▲ Establishment of health outposts to increase service utilization and remove barriers to access. Establish communal pharmacies to regulate and ensure the availability of medicines.
- ▲ Charge the patient the same price paid by the ministry for medicine, plus 5 percent. The accumulated capital is to finance the communal pharmacy and assorted health projects.
- ▲ It is hoped that these steps will improve the level of consumer trust, although inefficiencies at the district and ministerial levels remain a problem.

Van Der Geest, S. (1982). **The Efficiency of Inefficiency: Medicine Distribution in South Cameroon.** *Social Science and Medicine*, 16 (24), pp. 2145-53.

TOPIC

This article focuses on the distribution of medicines in South Cameroon. It examines in particular the manner in which "corruption" affects the distribution system. The author cites two types of factors which encourage "corruption": the carrying over of a multi-stranded kinship system into a new system based on a market economy; and the economic conditions of developing countries.

There are four avenues for the delivery of medicines in South Cameroon:

- ▲ **The public sector:** in public hospitals and health centers, medicines are distributed free of charge. The health centers receive a fixed amount of medicine which is to last them an entire year. The hospitals (which are located in urban areas) are permitted to order medicines according to their needs.
- ▲ **The private, non-profit sector (primarily religious organizations):** patients must buy the medicines which have been prescribed to them by a nurse or doctor. These institutions sell medicines at wholesale prices and are not allowed to sell medicines to non-patients.
- ▲ **The legal private commercial sector (pharmacies):** there are very seldom located in rural areas, but have a relatively efficient distribution system. Medicines are sold at retail prices and in standard packaged quantities.
- ▲ **The illegal commercial sector:** The sale of medicines purchased from smugglers, pharmacies, and health workers, which is socially accepted and practiced openly in rural areas. Vendors go from village to village.

METHODOLOGY

This paper is part of a much broader study of the distribution and use of Western medicines in Cameroon. Research techniques consisted of participant observation, collection of case histories, and the study of health reports, files and financial accounts.

FINDINGS

Inefficiency in the Public Sector: Medicines are ordered and distributed through the Pharmacie Centrale d'Approvisionnement and usually arrive there two years after they were ordered. On average, only 65 percent of the medicines ordered arrive, and by the time they reach the local level, many are expired. Before being distributed among the patient population, medicines are regularly given to the friends and relatives of health workers as well as to local officials, such as the teacher and the mayor, thus further reducing stock levels available to the consumer.

Because of the chronic shortage of medicines at the health centers, by the last two months of the year there are often no medicines left to distribute. As a result, patients stop coming to the health centers. Thus the (non-functioning) health center infrastructure must be maintained at a cost to the state, even though it is severely underutilized and can provide no medicine to patients. An example cited by the author tells of a health center where, once medicines have run out, the health workers regularly leave the clinic to tend fields, and the head-nurse is absent nine days out of ten.

The rural clinics are at a severe disadvantage compared to urban health centers, which contributes to unequal development of rural and urban areas. Distribution of medicine in rural areas is augmented by the practice by government workers who bring packages of medicine (obtained through government connections) to relatives when they return to their home villages for vacation. Although this increases the availability of medicine in rural areas, it decreases supplies at the hospital level and leads to the waste of medicines which are distributed without existing need.

Consequences of inefficiency: 1) patients in need of urgent care often go without medicine; 2) underutilization of health care services; 3) increased travel time for patients to find providers with available medicine; 4) waste of medicines distributed to family and civil officials; 5) treatment with too small doses for those patients who do receive medicine.

Note: in Cameroon, only 12 percent of the health budget is spent on medicines, as opposed to 25 percent in other developing countries.

POLICY RECOMMENDATIONS

The only possible solution lies in reducing the importance of state resources in the field of medicines by a limited commercialization of the public sector. Expensive free distribution of medicines should be replaced by a paid distribution of cheap medicines. Adoption of the WHO model for essential drugs would allow the government to deliver the most important medicines at very low prices.

Victor, C.R., and Vetter, N. (1986). *Poverty, Disability, and Use of Services by the Elderly: Analysis of the 1980 General Household Survey*. *Social Science and Medicine*, 22, no. 10, pp. 1087-1091.

TOPIC

The purpose of this paper is to examine the inter-relationships between poverty, disability, use of services, and old age in Great Britain.

METHODOLOGY

Using the 1980 General Household Survey, this paper investigates whether poverty might increase the demands made by the elderly for community care, irrespective of disability. A variety of measures of poverty were used. Since 1971 the General Household Survey has continuously surveyed a random sample of the general population of Great Britain resident in private households. The 1980 survey included a series of supplementary questions for those aged 65 years and older about disability and use of community services.

Disability was measured using certain indexes. Complete information on income was collected which served as a measure of poverty; the authors recognized its limitations.

FINDINGS

Substantial geographical variations in the distribution of poverty were evident. There was a high incidence of poverty among the elderly who relied heavily upon state benefits for the majority of their income. However, the use of health services demonstrated no significant differences between the elderly classified as poor, using the monetary definition, and the rest of the sample.

POLICY RECOMMENDATIONS

There were no clear policy recommendations but the author indicates that his findings, with regard to the oldest and frailest members of the population being the most vulnerable as regards income and health service, concur with those of several previous studies of the financial circumstances of the elderly. Thus, due to these extra demands for community care, the objectives of government policy for the care of the elderly should be reviewed. The above findings suggest that neither health nor social services departments discriminate in favor of the poor.

Viveros-Long, A. (1986). *Changes in Health Financing: The Chilean Experience. Social Science and Medicine*, vol. 22, no. 3, pp. 379-385.

TOPIC

Changing governments and economic fluctuations have influenced Chile's resource allocation and policy formation for the past 20 years. This paper describes how these changes have affected the Chilean health care system, and in particular, how the system changed under Pinochet's leadership in the early 1970s.

METHODOLOGY

The author used data for this evaluation from a variety of published reports; however, she did not discuss the methods by which it was originally obtained.

FINDINGS

Prior to 1973, under the governments of Frei and Allende, public health services had been financed primarily by the state. Health care was provided by four health care delivery systems, including the National Health Service (SNS), the National Medical Services for Employees (SERMENA), the private sector, and a system for the armed forces. Problems in this pre-Pinochet health system included abuses of public facilities by the private sector, organizational inefficiencies due to the system's pluralistic nature, and troubles financing SERMENA, which faced frequent deficits and drained government resources.

In 1979 the Pinochet government passed legislation which assigned the state a subsidiary role to the private sector in the provision of public health services. The new policies emphasized "free choice" in health care in order to take care of the problem of providing different health services to people with unequal incomes. In addition to reorganizing the health bureaucracy by unifying SNS and SERMENA into the National Health Fund agency, the government began to distribute financial resources to the health regions based on demand, rather than allocating finances regardless of the volume of health service supplied.

The government set up an incentive system for private sector financing by adopting three basic measures: 1) limitation of private practice in publicly owned hospitals, (2) the formulation of a new fee schedule for health services provided by public institutions, and (3) the creation of private organizations called ISAPRES, which represented an alternative to the National Health Fund in administering the obligatory 4 percent of workers' salaries deducted for health care. By May 1982, 10 ISAPRES had been established with 74,000 contracts serving 200,000 beneficiaries, or about 1 percent of the population.

Pinochet's system was designed to increase private spending by requiring the population, with the exception of indigents and blue collar workers under social security programs, to pay for health services. But as unemployment increased during the 1980s, more people became exempt from the fee system and thus demand for health care probably increased. Consequently, private sector financing did not seem to lower public health expenditures. More

qualification is needed in this area, however, since this theory does not seem to be based on any reliable statistics.

As a result of the above changes in health care financing, public health expenditures as a percentage of G.D.P. have shown a steady decline under Pinochet even after the economic recession of 1976. The decline in public health expenditure has been accompanied by a decline in capital investment and public health personnel. Since 1974 a rise in private health expenditures has partially offset this decline in spending, but total health care as a percentage of G.D.P. has still fallen. These G.D.P. measures may not accurately represent the change in health care expenditures, since private sector services are valued at market prices while public services are valued at subsidized rates. A study of the situation in Santiago illustrates the shift from public to private and concludes: 1) ambulatory health care increased 145 percent between 1975 and 1981 mainly in the richer areas of the city; 2) investment in diagnostic equipment has increased; 3) the number of hospital beds and private institutions has remained steady between 1976 and 1980; and 4) hospital construction investment has not occurred.

Although private investment has increased in ambulatory care centers and in equipment for diagnosis, these services are mainly accessible to high income groups which represent less than 10 percent of the population. In spite of this feature, by increasing primary health care expenditures the government has partially succeeded in attaining its main health goal, a decrease of over 75 percent in mortality rates for children under 5 years of age. While both general and infant mortality rates have declined between the early 1960s and the late 1970s, secondary health care seems to have deteriorated due to lack of funding.

Despite the government's goal to provide greater incentives for private sector investments in health care, few new sources of health financing have developed. The author attributes this to lack of demand due to recessionary trends, high unemployment, and uneven income distribution. Changes in the health care system have failed to solve the problems of unequal coverage for various sectors of the population.

POLICY RECOMMENDATIONS

Follow-up studies on changes in coverage since 1980 in face of varying economic conditions may reveal more about how successful Chile's health care system has been at increasing the access and quality of health care services for its growing population.

Vogel, R. J. (1990). **An Analysis of Three National Health Insurance Proposals in Sub-Saharan Africa.** *International Journal of Health Planning and Management*, vol. 5, pp. 271-285.

TOPIC

Government-run systems such as free-of-charge medical care for all citizens or progressive cost recovery systems with exemptions for the poor do not offer many choices for patients or create competition to encourage efficient production. But growth of private insurance plans has been slow due to high administrative costs and the problem of adverse selection. These factors have led governments to consider organizing National Health Insurance (NHI) programs. This article introduces rationales for NHI in Sub-Saharan Africa, then analyzes current NHI proposals in Ghana, Zimbabwe and Nigeria.

METHODOLOGY

NHI programs are analyzed using five criteria: identification of beneficiaries, efficiency effects, equity of financing, administrative costs, and political acceptability. The study examines a progression of proposals, from the most tentative proposal (Ghana) to the most developed proposal (Nigeria). In Nigeria, a committee conducted two major surveys on existing employer arrangements for health care and the costs of private physicians' practices, and also travelled to Indonesia and Austria to study NHI systems.

FINDINGS

In Ghana, a 1985 study on NHI recommended the establishment of a NHI company at an estimated capitalization cost of 1/6 of the Ministry of Health budget of C3 billion. This study estimated that 6.1 million people from private and public commercial establishments, the Cocoa Board and its registered farmers, and the Ghanaian civil services would voluntarily enroll in the program. These groups accounted for an estimated 60 percent of the entire population in 1985. Coverage at public and private health institutions and centers would include a variety of services and treatments, depending on the type of insurance policy purchased. The government would pay the premium for all civil servants, while private employers would pay for their employees.

When further analyzed, it seems that some of this study's recommendations violate basic public finance principles. First, the study assumes there will be a great demand for Ghana's health services without considering the actuarial risk, which depends on evaluation data that is imprecise in most developing countries. Second, the study's model plan does not require deductibles and coinsurance for consumers. The proposal's total health expenditures are also quite high relative to the Ministry of Health (MOH) budget.

Presently in Zimbabwe 4.6 percent of the population is covered by relatively sophisticated (when compared to other Sub-Saharan countries) private health insurance. Nevertheless, the government began a study in 1985 on the potential for a NHI scheme (NHIS) that would coincide with the introduction of a social security system. All salaried workers would be required to participate in the NHI

program, which would be financed by a 2.5 percent payroll deduction, divided into 1 percent from employees and 1.5 percent from employers. NHIS participants would hold cards which entitled them to free care, while non-salaried persons not covered by the NHIS would pay for health services at government facilities according to a cost-recovery fee schedule, except for the poor. The NHIS would not pay for private care.

Controversial points in the proposed NHIS include exemptions for MOH employees and the armed forces, the absence of deductibles, and a lack of estimates for NHIS administrative costs. Although the 2.5 percent tax would be allocated directly to health expenditures, the MOH lacks strict and final budgeting procedures. In effect, this flexible budgeting protects health personnel from financial risks associated with treatment decisions. Finally, depending on demand and supply elasticities for labor, the labor force could end up paying the entire 2.5 percent tax burden.

Out of Nigeria's three reports on the possibility of NHI, its two-volume report published in 1988 represents the most comprehensive study. In this report, the Committee on the Establishment of a NHI Scheme in Nigeria concludes that it would be impractical to insure the entire population, because of administrative difficulties, equity problems for poor families who could not afford the proposed premiums, and an unequal distribution of physicians and health care facilities within Nigeria. The Committee instead recommends that NHI be compulsory for those employed by firms with ten or more employees and for government employees. The self-employed and firms with less than ten employees could volunteer to participate in the system. The plan would also support Nigeria's population policy by limiting coverage to four children per insured worker. Other elements of the plan include reduced rates for retired elderly and free care in government health facilities for the poor.

Unlike the proposed systems in Zimbabwe and Ghana, Nigeria's NHI requires deductibles and/or co-payments in the form of charges for drugs and a payment of 10 percent of the charge for the first 21 days of hospital stay. Nigeria requires a flat rate of contributions to finance the NHI, and recommends that employers contribute at least twice as much as employees. The committee proposes the creation of a group of councils, boards, and offices from the local to the national level to oversee the plan. The administrative requirements seem too expensive.

POLICY RECOMMENDATIONS

All three proposals benefit mainly people working in the formal labor market and their families. If all three systems required deductibles and/or coinsurance, both rich and poor groups would not face situations financially catastrophic to their income, since the rich would pay fees for a certain number of days in the hospital, after which care would be free, while the poor would remain exempt from all fees. But because proposals in Zimbabwe and Ghana lack cost-recovery and pay providers on a fee-for-service basis, both rich consumers and providers have little or no incentive to consume health care efficiently.

In all three plans employers, which include the governments, pay a percentage of NHI premiums. Thus governments, depending on how many people they employ, may end up paying for much of the plans. This study proposed solving this problem by requiring employees to pay 100 percent of NHI premiums. According to recent research in Ogun, Nigeria, patients are willing to pay such increases in cost-recovery fees if health care services, particularly the supply of drugs, are noticeably improved.

Waddington, C.J., & Enyimayew. K.A. (1989). A Price to Pay: The Impact of User Charges in Ashanti-Akim District, Ghana. *International Journal of Health Planning and Management*, vol. 4, pp. 17-47.

TOPIC

This paper analyzes the effects of user charges on utilization of health care since 1985 in four government health centers in the rural areas of Dwease and Praaso and in the small towns of Konongo and Juaso. These areas are all located within the Ashanti-Akim district of Ghana. The total number of health facilities in this district consists of the Agogo district hospital run by the Presbyterian Mission and a variety of smaller health institutions and services administered by the district Management Team.

METHODOLOGY

The study used only routinely collected data obtained from each institution's record books and from monthly outpatient returns, which included the absolute number of consultations and the age and sex composition of attendance.

FINDINGS

In response to declining real expenditure levels in Ghana from 1978 to 1983, the Ministry of Health enforced full-cost charging for drugs, excluding vaccinations and certain diseases, and established the Hospital Fees Regulation of 1985, which increased the level of fees already present in the system by 17 percent in real terms. Ministry of Health staff and dependents remained exempt from all fees. In 1986 these exemptions accounted for 184,500 people, at an estimated loss of 113,730,000 cedis, or 21 percent of total fee revenue. One-half of the fee revenue accrued to the government treasury, and one-half went to the Ministry of Health, which allowed hospitals and health centers to keep a fixed percentage of this income.

In the Ashanti-Akim district, health centers received 25 percent of their total revenue. Out of the rest of the centers' revenue, 50 percent accrued to the national Treasury and 23 percent went to the Ministry of Health, which saved its portion in a non-interest bearing account. Due to the lack of a standard cut-off age, the person in charge of each center generally set the fees and decided who was eligible for the lower child rate. At least once the system was abused by a doctor who charged more than the fees established by the medical officer. Health center staffs tended to be against charging different rates according to economic status, although they noted that fees sometimes caused patients to visit the center later than they would have without the charges. Before visiting the centers, patients often visited other providers of health care such as drugstores, which had convenient hours in the evening and would often sell drugs at lower prices and in customary small quantities. Problems with drugstores included the distribution of expired drugs and the handling of prescriptions by unqualified personnel. Some consumers also complained that the social cost of paying for health care and the costs of travel to the centers were too high. The case of a farmer from Juaso was highlighted as an example of the high social cost to families.

This man complained that the money he used to pay for medical bills had been earmarked for his children's school fees.

In most instances, consumers were more concerned with quality than cost. Additional problems with health centers included a lack of credit for the patients, inconvenient hours of service, poor stocks of drugs at various times of the year, queue-jumping, impolite staff, and delays. Consumers tended to prefer injections over other forms of drugs, and often believed that hospitals performed amputations too readily and gave medicine to pregnant women which made babies grow too big to be delivered safely. Institutions were usually preferred if a relative was working at the facility or if the facility could do blood, stool, and urine examinations.

The study also examined utilization rates. For example, at the two rural centers the 1985 charges acted as a catalyst to an already declining utilization rate. Dwease and Praaso recorded 4581 consultations in the second quarter of 1985, and 1095 consultations in the final quarter of that year. By 1987, rural utilization rates still had not recovered to 1984 levels. At the two urban health centers, utilization decreased after the increase in fees, but later regained and overtook 1984 levels. Since mid-1987 urban utilization rates have been dropping again, possibly because of the replacement of a popular medical assistant. In particular categories, the proportion of children under five rose significantly after the introduction of fees in both rural and urban centers and in the Mission hospital. The proportions of females using rural and urban centers also declined. Although the data on occupation lacked clear definitive categories, it revealed that the proportion of farmers, housewives, and traders using health care facilities increased in the Agogo Hospital and decreased in both of the rural health centers.

By 1987 the Ministry of Health met its goal of generating revenue equivalent to 15 percent of its total recurrent expenditures, in addition to covering 81 percent of drug replacement costs. The major effects of the introduction of user charges seems to have been a shift in demand towards Agogo Hospital and a shift in demand towards the private sector, which consists of drugstores, traditional practitioners, quacks, and allopathic practitioners. The first shift occurred because Agogo Hospital's charging policy worked independently from the government, and the cost of a health visit, compared to the cost of a consultation at a health center, declined. But the increase in demand at Agogo was not accompanied by an increase in the proportion of people from rural areas seeking health care. Further research on a larger scale could validate this hypothesis. Although consumers complained about numerous aspects of the health centers, they generally accepted that it was reasonable to be expected to pay for health services, as long as drugs were available. None of the health center workers said they wanted to return to a free health service, and many disliked the idea of offering more exemptions for the poor. In fact, the Ministry of Health felt the level of fees should be adjusted upward.

POLICY RECOMMENDATIONS

While the Ministry of Health did manage to recover 15 percent of its expenditure through the increased fee program, it still must deal with issues of equity and affordability, especially for the rural population. The author believes user charges seem to be increasing rather than decreasing inequalities, especially since the Ministry of Health's revenue is losing value in non-interest-bearing bank accounts while the money sent the national treasury is not being geared towards any specific purpose. Finally, some future possibilities for Ghana's health system include indexing health care user prices to the Ghanaian Consumer Price Index to maintain the level of user charges, introducing a system with different charges in different geographical locations, and creating a program to reduce the number of expired drugs for sale in the private sector.

Waddington, C. & Enyimayew, K.A. (1990). A Price to Pay, Part 2: The Impact of User Charges in the Volta Region of Ghana. *International Journal of Health Planning and Management*, vol. 5, pp. 287-312.

TOPIC

This paper follows a smaller study conducted in the Ashanti-Akim district in May 1988. It attempts to see if the Ashanti-Akim findings were confirmed for a much larger sample of institutions, by showing what happened in the Volta region of Ghana after the increases in government health service charges in 1983 and 1985. Unlike the Ashanti-Akim study, it also looks at procedures for the collection and use of resources.

METHODOLOGY

The three main methods used to collect information for this paper were: 1) collecting the outpatient utilization data for 76 health facilities in the nine districts of the Volta region; 2) visiting Ministry of Health facilities in Anlo District for information on administrative practices; and 3) conducting focused discussions with four community groups in Anlo. Utilization was measured in terms of outpatient consultations.

FINDINGS

In the early 1980s many economic and health problems beleaguered Ghana, such as a rise in infant mortality from 80 per 1000 in the mid-1970s to approximately 100 in 1980 and 115 in the drought years of 1982-3; and a drop in attendance at hospitals and health clinics by about one-third between 1979 and 1983. In response, Ghana introduced an IMF-backed recovery program in 1983, which raised fees already present in the system since 1971. Because the 1983 fees barely impacted the financing of health services, in 1985 the government again increased fees with the goal of generating revenue equivalent to at least 15 percent of its total recurrent expenditures in 1986, 1987 and 1988. Affordability was considered in setting charges, which were 50 cedis per adult outpatient consultation at district hospitals and urban health centers (30 cedis for children), and 30 cedis per adult consultation at rural health facilities (20 cedis for children). Unlike the 1983 regulations, drugs were sold at full cost, with exceptions for vaccinations and treatment for certain diseases. Ministry of Health staff and dependents, as well as persons deemed "unable to pay" by an authority at each health facility, remained exempt from all fees.

In real terms, revenue increased by 17 percent between 1986 and 1987. While 81 percent of drug replacement costs were covered by fees, free drugs for staff, some non-collection of fees, and increasing replacement costs for drugs inhibited further cost recovery. The effects of the cost increase in the Volta region, which resembled the effects in the Ashanti-Akim region, are summarized as follows:

1. Urban utilization fell to less than half of its 1984 level in 1986, but nearly regained its 1984 level by 1988.
2. Rural utilization declined by 49 percent in 1986, slightly recovered, but remained well below 1984 levels in 1988.
3. The proportion of females using the government health service after 1985 increased, although the absolute number of female users decreased.
4. The proportion of users in the 15-44 age group increased from 26.8 percent to 42.1 percent. The absolute numbers of children under five users significantly decreased, although the drop in proportion was relatively small. The proportion of over-45 users dropped over 7 percent.

During the period of 1984-88 in which utilization rates were measured, the population increased by an average of 2.5 percent per year. Nationally, outpatient utilization fell from 4,468,482 in 1984 to 1,607,380 in 1985 and 2,051,501 in 1986. In contrast, both the purchasing power of the monthly wage of an unskilled urban worker and government spending on health care increased after 1983. This shows that the decline in utilization was probably not due to a decline in the quality of care. In addition, MOPH's claim that the drop in utilization in 1985 represented a decline in excess demand seems to be false. Although some of the decline in utilization represented excess demand, it is unlikely that a reduction in "frivolous" demand led to a much greater decline in rural utilization than in urban utilization, or caused a proportional increase in use by adults under 45 years. Although declining utilization rates also freed up staff time, the government ignored this effect. This led to significantly higher unit costs for outpatients in the lesser-used health centers and health posts.

Interviews with Anlo staff members provided additional information on charging fees and handling revenue. Unlike in Ashanti-Akim, all government facilities in the Volta region charged standard fees and charged for drugs according to a price list issued by regional headquarters. Facilities in the Volta region, like Ashanti-Akim, disliked allowing credit, with the exception of the Mission where drugs were given on credit to needy cases. All the institutions used bank accounts regularly, although only four of the eight Ministry of Health facilities had spent some of their revenue. Many of the staff viewed spending procedures as too slow and complicated. In 1990-1991, it was intended to make use of each institution's routinely collected data to monitor revenue relative to utilization and the value of drugs distributed, and to encourage appropriate use of revenue. The results of community group interviews indicated that people placed more emphasis on availability of drugs than on the impact of fees. Interviewees expressed concern about the shortage of drug supplies, staff rudeness at health facilities, the existence of bribery, and the inability of some people to get treatment. As in the Ashanti-Akim district, many people in Volta liked the private sector because of its quality of service and large supply of drugs.

POLICY RECOMMENDATIONS

This paper proposed various changes for Ghana's health system, such as simplifying spending procedures, implementing an identification system to exempt the poor from fees, and allowing more flexibility in payment methods. In setting fees, the Ministry of Health should consider different elasticities of demand between rural and urban areas. Elasticity measurements were not listed in this paper. Instead of increasing the percentage of expenditure covered by charges, the authors of this paper feel that differentials between urban and rural charges should be increased either on a local or a national scale. The 1985 fee increase failed to improve the status of rural health care, since most of the charges consisted of standardized drug costs.

Wadhawan, S. (1987). Health Insurance in India: The Case for Reform. *International Labor Review*, 126, pp. 479-94.

TOPIC

This article examines the state insurance scheme for wage earners in industry in India. It looks at the origins of the scheme and then discusses its financing and administration, the medical services supplied, the expansion of its infrastructure, and shortcomings in its operation.

METHODOLOGY

An historical overview is first conducted as background for evaluation of the present system (which will not be examined here due to the specific nature of this abstract). A literature review and secondary data serve as the basis for the body of the report.

FINDINGS

The Employees State Insurance Corporation (ESIC) was set up to provide insurance to wage earners and their families. It is responsible for the collection of contributions and the payment of cash benefits. Employers contribute 5 percent of their wage bill and employees 2.5 percent of their wages. The state presently contributes one-third of the financial support, although it was originally planned to provide two-third of the support.

The ESIC favored the adoption of full-time integrated service, but this was found to be impractical because of the acute shortage of suitable sites for full-time dispensaries and of medical personnel to staff them. Because of the limitations in service delivery and state financial support, many family members are excluded from the full range of medical care which was originally planned to be offered them.

The ESIC has attempted to expand, but must work with both the executive and the public works branches of state governments, which has led to slow growth. The inadequacy of existing medical facilities has limited the ESIC's attainment of the goal to provide medical care to the entire economically active population. The agricultural work force is also entirely outside any insurance scheme. ESIC requires at least 7,000 more hospital beds to make up for the shortfall and to replace reserved beds. This figure will only grow as the growth of the services continues to lag behind the expansion of the system. The number of doctors in the program is 12 to 14 percent below target numbers.

Insured persons complain of such things as inadequate facilities, perfunctory attention, shortages of staff, short supplies of medicines. Because ESIC patients attend state provided public health facilities, ESIC has little control over the quality of services, and the state administration has little investment in the ESIC program.

POLICY RECOMMENDATIONS

- ▲ Transfer control of the provision of services to ESIC.
- ▲ Introduce an element of cost-sharing for ambulatory and in patient medical treatment in order to reduce overutilization and abuse of medical services.
- ▲ Raise the wage ceiling (currently 1600 rupees per month) to a higher level thus making services appeal to higher status consumers who expect better service and improved efficiency in the service delivery system.
- ▲ Pay more attention to the prevention of accidents and diseases and to rehabilitating disabled persons.

Note: No specific case examples are given with regard to the overutilization and abuse of the system. Mention is made, however, of problems associated with the supply of pharmaceuticals through private chemists, over-prescribing, and excessive recommendations for advice from specialists.

Wagstaff, A. (1986). The Demand for Health. Some New Empirical Evidence. *Journal of Health Economics*, vol. 5, pp. 195-233.

TOPIC

This paper presents some new estimates based on the "pure investment" and "pure consumption" models of the demand for health. In contrast to previous studies, the paper presents parameter estimates for both reduced-form and structural equations in the model.

METHODOLOGY

The data for the empirical analysis are taken from the 1976 Danish Welfare Survey (DWS), a household survey of a randomly-selected, nationally representative sample of the 1976 Danish population between the ages of 20 and 70. The empirical analysis is confined to those in the labor force at the sample date.

Various variables are used such as health indicators, education variables, use-related depreciation variables, along with measures of health care utilization, time-cost and availability variables. The author explores the implications of estimating structural rather than reduced-form demand equations, using principal component analysis and Quartimax rotation (a specific type of factor analysis allowing variables to be dependent on each other).

FINDINGS

Estimation of the "pure investment" model fails to confirm several of the hypotheses derived from the model. As for the "pure consumption" model, the results suggest that optimal health stocks at one stage in the life-cycle do depend on initial asset holdings and on wage rates outside the current period. In view of the fact that "years of education" tends to be highly correlated with both initial assets and lifetime wages, there can be a little doubt that in many of the studies in this field, education is acting as a proxy for the real lifetime wealth variable.

POLICY RECOMMENDATIONS

No real policy implications are indicated but the author states that further work is required, and alternative methods to the two-stage method used in this study should be explored. The author explains that alternatives to the two-stage method would involve the estimation of intertemporal substitution elasticities and the estimation of responses to parametric shifts in exogenous variables.

Wedig, G.J. (1988). Health Status and the Demand for Health: Results on Price Elasticities. *Journal of Health Economics*, vol. 7, pp. 151-163.

TOPIC

The purpose of this paper is to present an additional set of results measuring the interaction between the consumer's price sensitivity and measures of health status. Differences in the apparent effect of health status on the elasticity of demand are consistent with a variety of theoretical explanations. The author states that as long as key variables such as the income elasticity of demand and the productivity of medical care differ along the demand curve, it is conceivable that health status may have differential effects on the measured elasticity at two distinct decision points.

METHODOLOGY

The data used in the empirical work is from the 1980 National Medical Care Utilization and Expenditure Survey (NMCUES), which was conducted by the National Center for Health Statistics and the Public Health Service. The NMCUES employed a stratified multi-stage area probability design for households to sample the civilian, non-institutionalized United States population.

In order to test the effects of health status on the price elasticity of demand, a two-equation approach similar to that employed by Newhouse and Phelps (1976) was used. One equation models the decision to seek or not to seek office-based care during the sample period. A second equation is used to predict the amount of care demanded conditional on positive utilization.

In order to measure health status, or health stock loss, a wide range of variables was used, including measures of perceived health status, disability days, and activity limitations. Each of these measures is interpreted as a proxy for expected health loss in the sense of Grossman's parameter, although it is clear that these proxies have limitations.

FINDINGS

The variables of primary interest, health status, and price, predict utilization in the expected manner. Of the health status measures, the square root of disability days is clearly the most important in both regressions in terms of significance and magnitude. Lesser effects are found for the perceived measures. Both the price and price squared are significant in both regressions, so that it is possible to reject the hypothesis that demand is linear in this variable. The calculated price elasticity at the mean for the use/non-use equation is $-.32$.

Elasticities within specific health status categories are based on the relevant price-health status interaction estimates and are calculated at the mean price and consumption levels within the health status category in question. As a result, the reported elasticities give a description of the consumer's demand curve at only a single point, the mean price and consumption level. There is no apparent consistent relationship between health status measured along the various dimensions and sensitivity to price.

This uneven pattern of results persists for both the decision to seek care and the level of care sought.

The results suggest that certain key determinants of the elasticity of demand such as the consumer's income elasticity and the marginal benefit of medical care must vary across different levels of health status. Thus, the price sensitivity of less healthy persons is smaller over the first few units of consumption. The results also indicate that those in poorer health may have either higher or lower price elasticities of demand at their mean level of consumption, but almost definitely a lower price elasticity over the initial range of their demand curve.

POLICY RECOMMENDATIONS

As regards policy, the author suggests that the effects of an aging population, for example, on the measured price elasticity of demand are complex and would benefit from further study and refinement of the health status-price elasticity relationship. Similarly, efforts to curb spending in an increasingly aged and less healthy population by increasing consumer liability for expenses are most likely to have their effects at the margin rather than through limiting overall access to the health care system.

Wolf-Gould, C., Taylor, N., Horwitz, S., & Barry, M. (1991). Misinformation About Medications in Rural Ghana. *Social Science and Medicine*, 33, (1), pp. 83-89.

TOPIC

This study assessed drug knowledge and use in a rural Ghanaian town. Health care workers and a community population sample were interviewed regarding their knowledge and use of available drugs.

METHODOLOGY

The interviews were conducted in a town of 20,000 inhabitants where a district hospital (with a steady source of available drugs) was located. Three separate groups were interviewed: 1) the adult initially encountered in 117 of 122 compound houses (a non-health care worker or NHCW); 2) all six of the town chemists (chemists have no formal training; they purchase their license from the government and obtain their drugs from the black market or import companies); 3) hospital care workers (3 of 5 Ghanaian doctors, 13 nurses, both medical assistants, both pharmacists, and the 8 dispensing assistants).

A questionnaire was developed for the purposes of the study. Questions were asked about name, indication, daily dose, course in days, and side effects of 16 drugs available without prescription in the local chemist shops.

FINDINGS

Of NHCWs, 27.9 percent correctly identified a drug by generic, brand, or local name; 23 percent assigned a correct indication; 21.4 percent the correct daily dose; 23.4 percent the correct treatment course in days, and 8.1 percent could name a side effect. Of this group 39.6 percent took drugs on the advice of a doctor, 18.1 percent on a chemist, 7.1 percent on a family friend, and 33.2 percent as self-medication. Only 36.7 percent of the NHCW population could understand the language (English) in which labels on drug packages were written.

Chemists are the provider of choice (18.1 percent of the sample relied on a chemist for treatment advice and 33.2 percent self-medicated, buying the drugs through a chemist shop) because they charged less than clinics and hospitals for medical treatment, had shorter lines, and customers could pay with cash or *produce*. Chemists reported the highest use and lowest knowledge of the 16 drugs, and only 43 percent of chemists knew the correct daily dose of a drug. Chemists stated that even in cases where they *knew* the drug requested by the patient was not meant for the accompanying complaint, they would provide the drug requested because that is *what the consumer had asked for*.

Doctors/medical assistants/hospital pharmacists reported the lowest use and highest knowledge; 87.5 percent knew the correct daily dose of a drug. Although the hospital-based health care workers tended to prescribe correctly, the transfer of information was impeded by time constraints and cultural or language barriers.

POLICY RECOMMENDATIONS

- ▲ Develop programs for consumers to educate them about how to safely use the drugs which are available to them. The issue of self-medication is key. Because the source of advice on how to use a drug had little effect on correct usage of the drug, it is necessary to deal with the problems arising from self-medication.
- ▲ The authors suggest mass media campaigns, basic educational talks for patients waiting in line at health care centers, and the complete labelling of drugs sold by hospital pharmacies.
- ▲ Educational programs for chemists could be continued (they have been sponsored by the government with little success, but repeat programs might in fact show an improvement in knowledge levels).

Yoder, R. A. Are People Willing and Able to Pay for Health Services? (1989). *Social Science and Medicine*, vol. 29, no. 1., pp. 35-42.

TOPIC

Following a nationwide increase in user fees for health services in Swaziland, this paper analyzes the effect of fee increase on overall patient use of health services; on which types of services, curative vs. preventive, were most affected; and on changes in utilization by higher paying and lower paying groups. User fees typically are justified on the grounds that people are willing and able to pay for services. Evidence in support of this assumption generally derives from household or aggregate expenditure surveys or from attitude surveys.

METHODOLOGY

Service-based data from the Ministry of Health's information system were used as the primary source. Patient attendance data from a 71 percent sample of government and mission health facilities, suggest that the "people are willing and able to pay for health services" assertion is not supported by the Swaziland case.

Several limitations in the methodology are noted by the author. These include: 1) a representative rather than a random sample of facilities, 2) lack of control group, and 3) absence of complete congruence between facilities used in the original study and the follow-up study.

FINDINGS

Patient visits designed to protect against childhood diseases, BCG and DPT immunizations, or against dehydration in children, show average attendance declines of -16, -19, and -24 percent, respectively, while visits for musculoskeletal diseases, a less serious disease, declined 1.2 percent. The analysis also suggests that up to 34 percent of the overall decline in attendance was among the patients who previously had paid the least for health care, with part of this decline likely including fewer multiple visits. The inelastic demand of .32 for government facilities indicate that for every 1 percent increase in the price of health care, utilization is expected to decrease by approximately .32 percent.

When combined with results of other studies, what these findings suggest is that the empirical evidence supporting the "willing and able to pay" assertion is mixed. In some cases, people have both a willingness and an ability to pay; in others they do not. The Swaziland data do appear to suggest that a non-discriminatory, flat increase in user fees, as was introduced in Swaziland, is neither an equitable nor an efficient solution to the financing problem.

At the same time, the author indicates that there is evidence suggesting that user fees can have beneficial effects when accompanied by complementary measures such as a differential fee structure, return of revenues from user fees to the Ministry of Health instead of the central treasury, and provision of insurance coverage or other forms of shared risk.

POLICY RECOMMENDATIONS

There were no clear policy recommendations presented. Some implications such as the issue of the trade-off of a further reduction in financial access for the lower paying groups, which would be difficult to defend on either equity or political criteria, was discussed. The author concluded by stating that there is a need for disaggregated analyses which provide indications of how the burdens and benefits of user fees are distributed across the population, their impact on demand and quality and quantity of supply, and their impact on cost recovery.

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